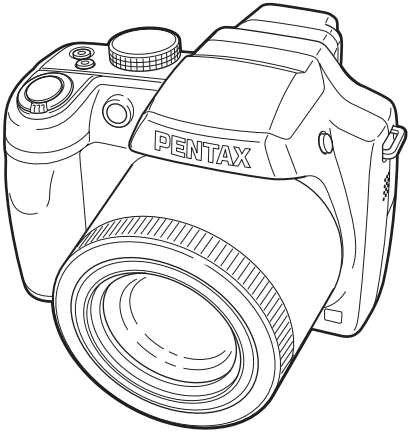
PENTAX

EN

Digital Camera

X90 Operating Manual



Compatible with Windows 7

ArcSoft®

HDMI™ HIGH-DEFINITION MULTIMEDIA INTERFACE

SDHC™

HI-SPEED USB CERTIFIED

To ensure the best performance from your camera, please read the Operating Manual before using the camera.

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Thank you for purchasing this PENTAX Digital Camera.
Please read this manual before using the camera in order to get the most out of all the features and functions. Keep this manual safe, as it can be a valuable tool in helping you to understand all the camera's capabilities.

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Regarding Product Registration

In order to better serve you, we request that you complete the product registration, which can be found on the CD-ROM supplied with the camera or the PENTAX website. Thank you for your cooperation.
Refer to "Viewing Images on a Computer" (p.219) for more information.

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To users of this camera

- Do not use or store this device in the vicinity of equipment that generates strong electromagnetic radiation or magnetic fields.
  Strong static charges or the magnetic fields produced by equipment such as radio transmitters could interfere with the monitor, damage the stored data, or affect the product's internal circuitry and cause camera misoperation.
- The liquid crystal panel used in the display is manufactured using extremely high precision technology. Although the level of functioning pixels is 99.99% or better, you should be aware that 0.01% or fewer of the pixels may not illuminate or may illuminate when they should not. However, this has no effect on the recorded image.
- If you point the camera toward an object that is bright, a band of light may appear on the screen display. This phenomenon is referred to as “smear” and is not a malfunction of the camera.
- There is a possibility that the illustrations and the display screen in this manual are different from the actual product.
- In this manual, both an SD Memory Card and an SDHC Memory Card are referred to as SD Memory Cards hereafter.
- In this manual, the generic term “computer(s)” refers to either a Windows PC or a Macintosh hereafter.
- In this manual, the term “battery(ies)” refers to any type of batteries used for this camera and accessories.

USING YOUR CAMERA SAFELY

We have paid close attention to the safety of this product. When using this product, we request your special attention regarding items marked with the following symbols.

⚠ **Warning**	This symbol indicates that violating this item could cause serious personal injuries.
⚠ **Caution**	This symbol indicates that violating this item could cause minor or medium personal injuries, or material losses.

About the Camera

⚠ Warning

- Do not disassemble or modify the camera. High voltage areas are present inside the camera, with the risk of electric shock.

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- If the camera interior is exposed due to dropping or otherwise damaging the camera, never touch the exposed portion. There is a risk of electric shock.
- Wrapping the strap around your neck is dangerous. Take care that small children do not hang the strap around their necks.
- If any irregularities occur during use, such as smoke or a strange odor, stop use immediately, remove the battery or the AC adapter, and contact your nearest PENTAX Service Center. Continuing to use the product can cause a fire or electric shock.

⚠ Caution

- Do not place your finger over the flash when discharging the flash. You may burn yourself.
- Do not cover the flash with clothing when discharging the flash. Discoloration may occur.
- Some portions of the camera heat up during use. There is a risk of low temperature burns when holding such portions for long periods.
- Should the monitor be damaged, be careful of glass fragments. Also, be careful not to allow the liquid crystal to get on your skin, in your eyes or mouth.
- Depending on your individual factors or physical condition, the use of the camera may cause itching, rashes or blisters. In case of any abnormality, stop using the camera and get medical attention immediately.

About the Battery Charger and the AC Adapter

⚠ Warning

- Always use the battery charger and AC adapter exclusively developed for this product, with the specified power and voltage. Using a battery charger or AC adapter not exclusive to this product, or using the exclusive battery charger or AC adapter with an unspecified power or voltage can cause a fire, electric shock, or camera breakdown. The specified voltage is 100 - 240V AC.
- Do not disassemble or modify the product. This can cause a fire or electric shock.
- If the generation of smoke or strange odor from the product or other abnormality occurs, immediately discontinue use and consult a PENTAX Service Center. Continuing to use the product can cause a fire or electric shock.

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- If water should happen to get inside the product, consult a PENTAX Service Center. Continuing to use the product can cause a fire or electric shock.
- If a thunder storm should occur while using the battery charger and AC plug cord, unplug the AC plug cord and discontinue use. Continuing to use the product can cause damage to the equipment, fire, or electric shock.
- Wipe off the plug of the AC plug cord if it becomes covered with dust. Dust on the plug may cause a fire.

⚠ Caution

- Do not place or drop heavy objects on or forcefully bend the AC plug cord. Doing so may damage the cord. Should the AC plug cord be damaged, consult a PENTAX Service Center.
- Do not touch or short-circuit the terminal area of the AC plug cord while the cord is plugged in.
- Do not plug or unplug the power cord with wet hands. This can cause an electric shock.
- Do not drop the product, or subject it to violent impact. This can cause equipment breakdown.
- Do not use the battery charger to charge a battery other than a rechargeable lithium-ion battery D-LI106. Attempting to charge other types of batteries may cause an explosion, or heating, or may damage the battery charger.
- To reduce the risk of hazards, use only a CSA/UL certified power supply cord set, cord is Type SPT-2 or heavier, minimum NO.18 AWG copper, one end with a molded-on male attachment plug cap (with a specified NEMA configuration), and the other is provided with a molded-on female connector body (with a specified IEC nonindustrial type configuration) or the equivalent.

About the Battery

⚠ Warning

- Be sure to store the battery out of the reach of small children. Placing it in their mouths may cause an electric shock.
- If any leakage from the battery should come in contact with your eyes, do not rub them. Flush your eyes with clean water and get medical attention immediately.

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⚠ Caution

- Only use the specified battery with this camera. Use of other batteries may cause an explosion or fire.
- Do not disassemble the battery. Disassembling the battery may cause an explosion or leakage.
- Remove the battery from the camera immediately if it becomes hot or begins to smoke. Be careful not to burn yourself during removal.
- Keep wires, hairpins, and other metal objects away from the + and - contacts of the battery.
- Do not short the battery or dispose of the battery in fire. This can cause an explosion or fire.
- If any leakage from the battery should come in contact with skin or clothes, wash the affected areas thoroughly with water.
- Precautions for D-LI106 Battery Usage:
  BATTERY MAY EXPLODE OR FIRE IF MISTREATED.
  - DO NOT DISASSEMBLE OR DISPOSE OF IN FIRE.
  - DO NOT CHARGE EXCEPT SPECIFIED CHARGING CONDITION.
  - DO NOT HEAT ABOVE 140°F / 60°C, OR SHORT CIRCUIT.
  - DO NOT CRUSH OR MODIFY.

Keep the Camera and Accessories out of the Reach of Small Children

⚠ Warning

- Do not place the camera and its accessories within the reach of small children.
  1. If the product falls or is operated accidentally it may cause serious personal injuries.
  2. Wrapping the strap around a neck may cause suffocation.
  3. To avoid the risk of a small accessory such as the battery or SD Memory Cards from being swallowed by mistake, keep them out of the reach of small children. Seek medical attention immediately if an accessory is accidentally swallowed.

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Care to be Taken During Handling

Before Using Your Camera

- When traveling, take the Worldwide Service Network listing that is included in the package. This will be useful if you experience problems abroad.
- When the camera has not been used for a long time, confirm that it is still working properly, particularly prior to taking important pictures (such as at a wedding or when traveling). Pictures and sounds cannot be guaranteed if recording, playback or transferring your data to a computer, etc. is not possible due to a malfunction of your camera or recording media (SD Memory Card), etc.

About the Battery and Charger

- Storing the battery fully charged may decrease the battery performance. Avoid storing in high temperatures.
- If the battery is left inserted and the camera is not used for a long time, the battery will over-discharge and shorten the battery's usage span.
- Charging the battery a day before use or on the day of use is recommended.
- The AC plug cord provided with this camera is developed exclusively for the battery charger D-BC106. Do not use it with other devices.

Precautions on Carrying and Using Your Camera

- Do not subject the camera to high temperatures or high humidity. Do not leave the camera in a vehicle, as the temperature can get very high.
- Do not subject the camera to strong vibrations, shocks, or pressure. Use a cushion to protect the camera from vibrations of motorcycles, automobiles, or ships.
- The temperature range for camera use is 0°C to 40°C (32°F to 104°F).
- The monitor may appear black at high temperatures, but will return to normal at normal temperatures.
- The monitor may respond more slowly at low temperatures. This is due to liquid crystal properties, and is not a malfunction.
- Sudden temperature changes will cause condensation on the inside and outside of the camera. Place the camera in your bag or a plastic bag, and remove it after temperature of the camera and surroundings are equalized.

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- Avoid contact with garbage, mud, sand, dust, water, toxic gases, or salts. These could cause the camera to breakdown. Wipe the camera to dry off any rain or water drops.
- Please do not press forcefully on the monitor. This could cause it to break or malfunction.
- Be careful not to overtighten the tripod screw when using a tripod.
- The lens on this camera is not interchangeable. The lens is not removable. Do not hold or force the extended part of the lens. This can cause a malfunction.

Cleaning Your Camera

- Do not clean the product with organic solvents such as thinner, alcohol or benzene.
- Use a lens brush to remove dust accumulated on the lens. Never use a spray blower for cleaning as it may damage the lens.

Storing Your Camera

- Do not store the camera with preservatives or chemicals. Storage in high temperatures and high humidity can cause mold to grow on the camera. Remove the camera from its case and store it in a dry and well-ventilated location.

Other Precautions

- Periodic inspections are recommended every one to two years to maintain high performance.
- Refer to “Precautions When Using an SD Memory Card” (p.39) regarding the SD Memory Card.
- Please note that deleting images or sounds, or formatting the SD Memory Cards or the built-in memory does not completely erase the original data. Deleted files can sometimes be recovered using commercially available software. It's user's responsibility to ensure the privacy.

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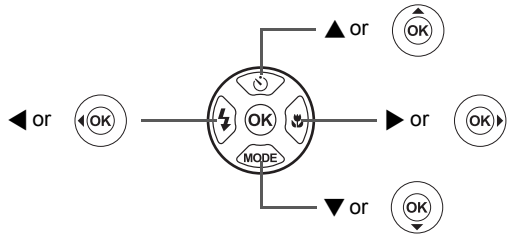
In this manual, the method for operating the four-way controller is shown in illustrations, such as in the ones below.



The meanings of the symbols used in this Operating Manual are explained below.

☞	indicates the reference page number for an explanation of the related operation.
memo	indicates information that is useful to know.
Caution	indicates precautions to be taken when operating the camera.
mode	This is the mode for capturing still pictures and recording movies. In this manual, the mode for taking still pictures is referred to as the “still picture capture mode” and the mode for recording movies is referred to as the “ mode”.
mode	This is the mode for viewing still pictures and playing back movies and sounds.

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Composition of the Operating Manual

This Operating Manual contains the following chapters.

1 Getting Started

This chapter explains what you need to do after purchasing the camera before you start taking pictures. Be sure to read it and follow the instructions.

2 Common Operations

This chapter explains common operations such as the functions of the buttons and how to use the menus. For more details, refer to the respective chapters below.

3 Taking Pictures

This chapter explains the various ways of capturing images and how to set the relevant functions.

4 Playing Back and Deleting Images

This chapter explains how to view still pictures and movies on the camera or on a TV screen and how to delete them from the camera.

5 Editing and Printing Images

This chapter explains the ways of printing still pictures and how to edit them with the camera.

6 Recording and Playing Back Sound

This chapter explains how to add sound (a voice memo) to an image, and how to play back it.

7 Settings

This chapter explains how to set the camera-related functions.

8 Viewing Images on a Computer

This chapter explains how to connect the camera to a computer, and includes installation instructions and a general overview of the provided software.

9 Appendix

This chapter deals with troubleshooting and lists the optional accessories.

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Camera Features

In addition to basic picture-taking, the X90 has a variety of shooting modes to suit different situations. This section describes how to make the most of the key features of your camera. Together with the explanations of camera operations, it will enable you to enjoy your camera to the full.

Easy-to-Navigate Capture and Playback Functions!

The user-friendly design of the X90 enables easy operation with only a few buttons. Simply by choosing the appropriate icon, you can select the shooting mode (p.78) and choose the optimal settings for the situation, or the playback mode (p.152, p.176) and enjoy the various playback and editing functions. A guide on the display lets you check the functions available in each mode and how to use them.

- **A shooting mode guide is displayed in the Capture Mode Palette and a playback mode guide in the Playback Mode Palette (p.79, p.152).**
- **Use the Green Mode to take pictures easily using standard settings (p.72).**

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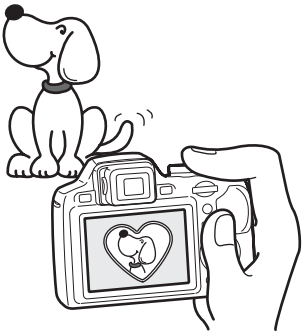
Perfect for Portrait Shots!

The X90 comes with a “Face Detection” function that spots the faces in your shot and automatically adjusts the focus and exposure for the faces. It can detect up to 32 people per shot (*), so it will help you take perfect group shots too. It will automatically release the shutter when people are smiling, or if anyone blinked, it will tell you that so you can take the shot again until it is perfect. It also has a feature that lets you enlarge each person's face in sequence during playback so you can quickly check their facial expressions.

* Up to 31 face detection frames are displayed on the monitor.

- **Face Detection function (p.70)**
- **Modes for taking stunning pictures of people (p.83)**
- **Close-ups of people’s faces for easy checking during playback (p.159)**

Add Various Frames to Your Pictures!



When you take a picture with the X90, you can choose from a wide range of fun frames to create attractive framed shots (p.90). You can also add frames to pictures you have taken. Adjust the position of the subject in the picture or reduce or enlarge the picture size to match the frame shape and size. Now you no longer have to worry about the subject not fitting into the frame (p.185).

- **For decorating your pictures with a frame**

Display Images and Sounds (Voice Memo) in Calendar Format!

With the X90, you can display recorded images by date in calendar format (p.151). This lets you quickly find the image you want to play back.

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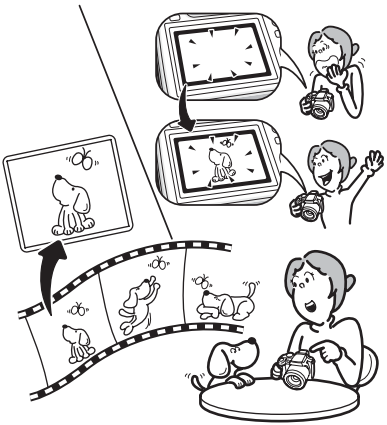
Advanced Movie Recording Functions

The X90 has a Shake Reduction function (Movie SR) to reduce camera shake during movie recording (p.143). You can record movies in 1280×720 pixel (16:9) HDTV format (p.142) and can enjoy viewing high-quality movies on AV devices by connecting the camera using a commercially available HDMI cable (p.172).

- **Use the camera to shoot fun-filled movies of your children or pets as a visual diary of their development (p.140).**

A Multitude of Functions inside the Camera for Enjoying Images without a Computer!

The X90 has a variety of functions to let you enjoy playing back and editing images without having to connect the camera to your computer and transfer the images first. The camera is all you need to take and edit still pictures and movies (p.176). And no more worries about accidentally deleting images, because now, with the X90, you can recover them again (p.165).



- **Resize (p.176), Cropping (p.177) and Red-eye Compensation (p.184) can be used, while the image is displayed in the playback mode.**
- **You can divide a movie into two or select a frame from a movie to save it as a still picture (p.188).**

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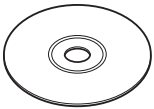
Checking the Contents of the Package

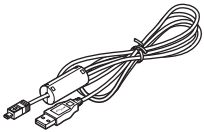
Camera
X90

Strap
O-ST92 (*)

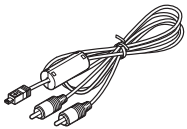
Lens cap O-LC106 (*)
(Cap installed on camera)



Software (CD-ROM)
S-SW104

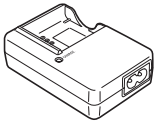


USB cable
I-USB7 (*)



AV cable
I-AVC7 (*)

Rechargeable lithium-ion
battery D-LI106 (*)



Battery charger
D-BC106 (*)

AC plug cord (*)

Operating Manual
(this manual)

Quick Guide

Items marked with an asterisk (*) are also available as optional accessories.
The battery charger and AC plug cord are only sold as a set (Battery Charger Kit K-BC106).
For other optional accessories, refer to “Optional Accessories” (p.253).

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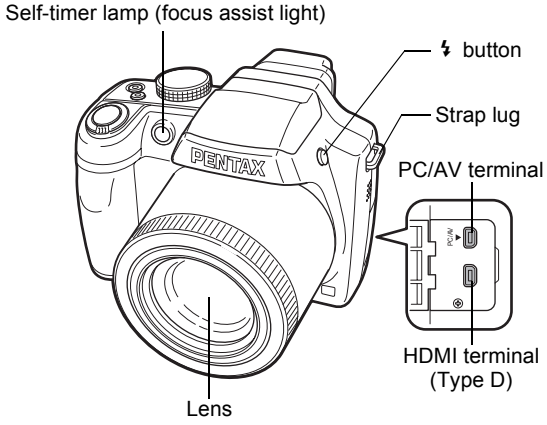
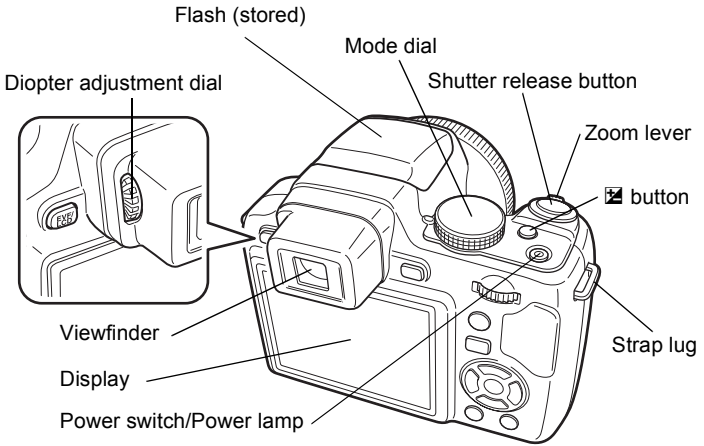
Names of Parts

Front



Back



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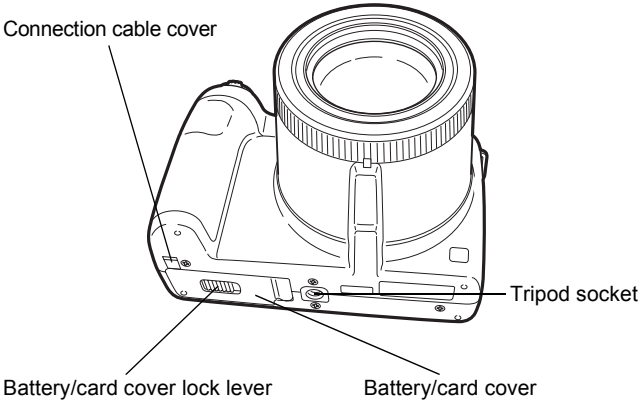
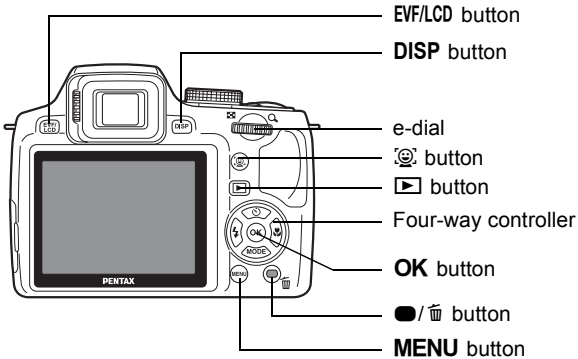
Bottom



Names of Operating Parts



memo Refer to “Understanding the Button Functions” (p.52 - p.55) for an explanation of the function of each button.

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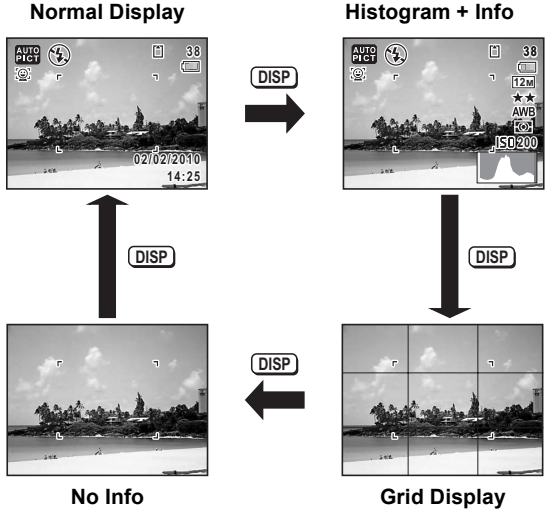
Monitor Indications

Display in Mode

The display shows information such as the shooting conditions in the capture mode. The display changes in the following sequence each time you press the **DISP** button: “Normal Display”, “Histogram + Info”, “Grid Display” and “No Info”.



- When the shooting mode is set to (Green) mode, the monitor display is as shown on the right. You cannot change the information on the display by pressing the **DISP** button.
- To take pictures using the viewfinder, switch from the monitor display to the viewfinder by pressing the **EVF/LCD** button. Press the button again to switch to the monitor display.

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Normal Display in Still Picture Capture Mode

1 Shooting mode (p.78)
2 Face Detection icon (p.70)
3 D-Range Setting icon (p.130)
4 Shake Reduction icon (p.132)
5 Shutter speed
6 Aperture
7 Flash Mode (p.112)
8 Drive Mode (p.92 - p.97)
9 Focus Mode (p.114)
10 Eye-Fi communication status (p.235)
11 Digital Zoom/Intelligent Zoom icon (p.74)
12 Memory status (p.42)
13 Remaining image storage capacity
14 Battery level indicator (p.34)
15 Focus frame (p.67)
16 Date and time (p.47)
17 EV Compensation (p.76)
18 Date Imprint setting (p.136)
19 World Time setting (p.205)

* 3 differs depending on the [D-Range Setting] setting in the [📷 Rec. Mode] menu.
  - When [Highlight Correction] is set to ☑
  - When [Shadow Correction] is set to ☑
  - D When [Highlight Correction] and [Shadow Correction] are both set to ☑

  If [Highlight Correction] and [Shadow Correction] are both set to □ (Off), nothing appears in 3.

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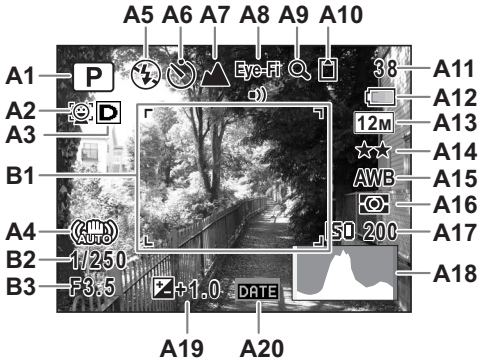
* For 4, (AUTO) appears if the shutter release button is pressed halfway when [Shake Reduction] in the [📷 Rec. Mode] menu is set to ☑ (On). (AUTO) appears when [Shake Reduction] is set to □ (Off).
* 5 and 6 always appear when the shooting mode is set to **P**, **Tv**, **Av**, **M**, or **USER**. In other shooting modes, they are displayed only when the shutter release button is pressed halfway.
* 10 differs depending on the communication status when using an SD Memory Card with a built-in wireless LAN (Eye-Fi card).

(No indicator)	Eye-Fi card is not supported
Eye-Fi ▪))	Communicating data
Eye-Fi ●--	Waiting for communication
Eye-Fi ⊘	Eye-Fi communication is not allowed
Eye-Fi ⚠	Version is outdated

* Some indications may not appear depending on the shooting mode.

Histogram + Info/Grid Display/No Info Display in Still Picture Capture Mode

A1 to A18 and B1 appear when “Histogram + Info” is selected. Only B1 appears when “Grid Display” or “No Info” is selected.



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A1 Shooting mode (p.78)
A2 Face Detection icon (p.70)
A3 D-Range Setting icon (p.130)
A4 Shake Reduction icon (p.132)
A5 Flash Mode (p.112)
A6 Drive Mode (p.92 - p.97)
A7 Focus Mode (p.114)
A8 Eye-Fi communication status (p.235)
A9 Digital Zoom/ Intelligent Zoom icon (p.74)
A10 Memory status (p.42)
A11 Remaining image storage capacity
A12 Battery level indicator (p.34)
A13 Recorded Pixels (p.121)
A14 Quality Level (p.123)
A15 White Balance (p.124)
A16 AE Metering (p.128)
A17 Sensitivity (p.126)
A18 Histogram (p.26)
A19 EV Compensation (p.76)
A20 Date Imprint setting (p.136)
B1 Focus frame (p.67)
B2 Shutter speed
B3 Aperture

* A3 differs depending on the [D-Range Setting] setting in the [📷 Rec. Mode] menu.
  - When [Highlight Correction] is set to ☑
  - When [Shadow Correction] is set to ☑
  - When [Highlight Correction] and [Shadow Correction] are both set to ☑

  If [Highlight Correction] and [Shadow Correction] are both set to □ (Off), nothing appears in A3.
* For A4, (AUTO) appears if the shutter release button is pressed halfway when [Shake Reduction] in the [📷 Rec. Mode] menu is set to ☑ (On). appears when [Shake Reduction] is set to □ (Off).
* A8 differs depending on the communication status when using an SD Memory Card with a built-in wireless LAN (Eye-Fi card).

(No indicator)	Eye-Fi card is not supported
Eye-Fi	Communicating data
Eye-Fi	Waiting for communication
Eye-Fi	Eye-Fi communication is not allowed
Eye-Fi	Version is outdated

* B2 and B3 always appear when the shooting mode is set to **P**, **Tv**, **Av**, **M**, or **USER**. In other shooting modes, they are displayed only when the shutter release button is pressed halfway.

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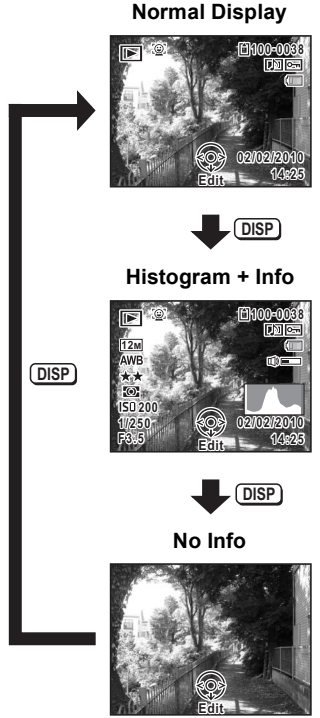
* When the shooting mode is AUTO PICT (Auto Picture) and if you press the shutter release button halfway, the automatically selected shooting mode appears in A1 even when “Grid Display” or “No Info” is selected (p.66).
* Some indications may not appear depending on the shooting mode.

Display in ▶ Mode

The display shows the shooting information of the image in the playback mode. The display changes in the following sequence each time you press the **DISP** button: “Normal Display”, “Histogram + Info” and “No Info”.



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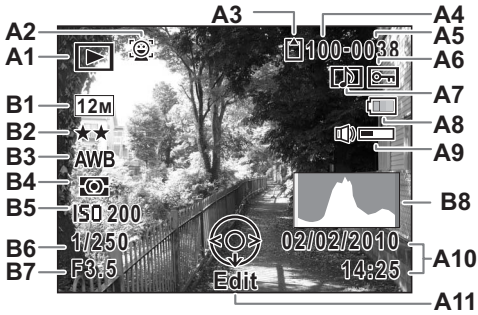
Normal Display/Histogram + Info Display in Playback Mode
(All items are displayed here for explanatory purposes.)

The display shows information such as the shooting conditions. A1 to A11 appear when “Normal Display” or “Histogram + Info” is selected. B1 to B8 appear only when “Histogram + Info” is selected.



A1 Playback mode
- ▶ : Still Picture (p.148)
- ▶ : Movie (p.149)

A2 Face Detection icon (p.70)
A3 Memory status (p.42)
A4 Folder number (p.209)
A5 File number
A6 Protect icon (p.166)
A7 Voice memo icon (p.197)
A8 Battery level indicator (p.34)
A9 Volume icon
A10 Captured date and time (p.47)
A11 Four-way controller guide
B1 Recorded Pixels (p.121)
B2 Quality Level (p.123)
B3 White Balance (p.124)
B4 AE Metering (p.128)
B5 Sensitivity (p.126)
B6 Shutter speed
B7 Aperture
B8 Histogram (p.26)

* A2 appears only if the Face Detection function worked when the image was shot.
* In “Normal Display”, A8 and A10 disappear if no operation is performed for two seconds.
* A9 appears only when the volume is being adjusted during playback of movies or voice memos. (p.149, p.197)
* A11 appears even when “No Info” is selected, but disappears if no operation is performed for two seconds. When no operation is performed for two seconds in “Normal Display” or “Histogram + Info”, only “Edit” disappears.

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Guide Indications

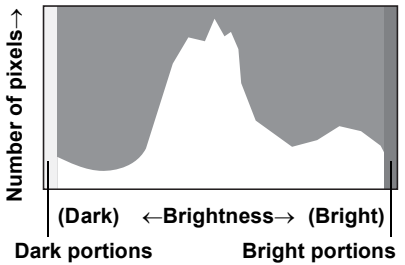
A guide indication for each available button/key operation appears as follows on the display during operation.

▲	Four-way controller (▲)
▼	Four-way controller (▼)
◀	Four-way controller (◀)
▶	Four-way controller (▶)
MENU	**MENU** button

Q / ⊞	e-dial
OK	**OK** button
SHUTTER	Shutter release button
⊖/🗑	⊖/🗑 button
☺/☺	☺ button

Using the Histogram

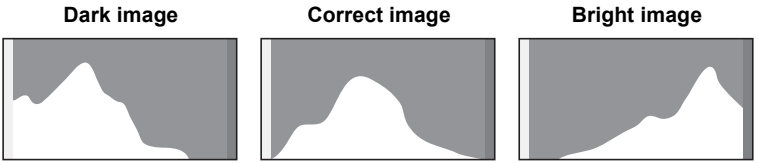
A histogram shows the brightness distribution of an image. The horizontal axis represents brightness (dark at the left and bright at the right) and the vertical axis represents the number of pixels.
The shape of the histogram before and after shooting tells you whether the brightness and contrast are correct or not, and lets you decide if you need to adjust the exposure and take a picture again.



Adjusting the Exposure ☞p.76

Understanding Brightness

If the brightness is correct, the graph peaks in the middle. If the image is too dark, the peak is on the left side, and if it is too bright, the peak is on the right side.



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When the image is too dark, the part to the left is cut off (dark portions) and when the image is too bright, the part to the right is cut off (bright portions).

Understanding Contrast

The graph peaks gradually for images in which contrast is balanced. The graph peaks on both sides but sinks in the middle for images with a large difference in contrast and low amounts of mid-level brightness.

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Memo

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1 Getting Started

Attaching the Lens Cap and Strap 30
Powering the Camera 31
Installing the SD Memory Card 37
Turning the Camera On and Off 41
Initial Settings 43
Adjusting the Viewfinder Diopter 50

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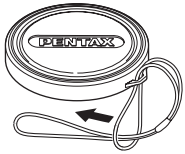
Attaching the Lens Cap and Strap

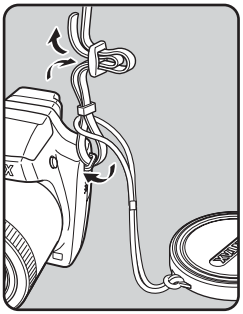
Attach the lens cap (O-LC106) and strap (O-ST92) supplied with the camera.

1 **Attach the string provided to the lens cap.**

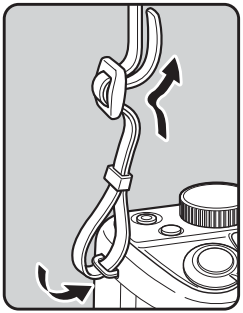


2 **Pass the end of the strap through the strap lug, then secure it on the inside of the clasp.**

As shown in the illustration, passing the strap through the lens cap's string prevents the lens cap from being lost.



3 **Attach the other end of the strap in the same manner as described above.**



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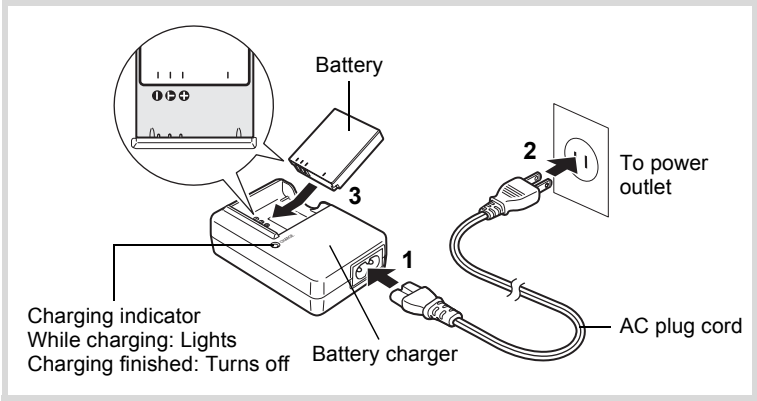
Charging the Battery

Use the supplied battery charger (D-BC106) to charge the supplied rechargeable lithium-ion battery (D-LI106) before using it in the camera for the first time or after a long period of non-use, or when the [Battery depleted] message appears.
Note: AC plug cord “Listed, Type SPT-2 or NISPT-2, 18/2 flexible cord, rated 125 V, 7A, minimum 6ft (1.8m)”



1 **Connect the AC plug cord to the battery charger.**

2 **Plug the AC plug cord into the power outlet.**

3 **Place the battery in the battery charger so that the PENTAX logo is facing up.**

The charging indicator lights while the battery is charging and turns off when charging is finished.

4 **Remove the battery from the battery charger when charging is finished.**

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Caution

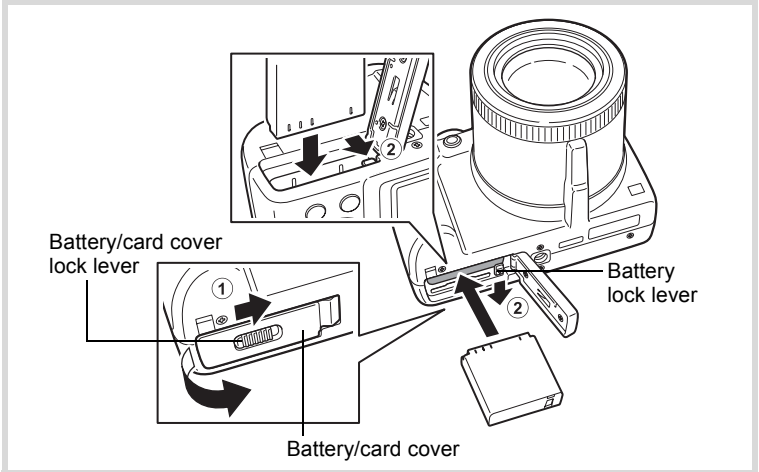
- Do not use the supplied battery charger (D-BC106) to charge batteries other than the rechargeable lithium-ion battery D-LI106, as the battery charger may overheat or be damaged.
- The battery has reached the end of its service life when it starts to run down soon after being charged. Replace it with a new battery.
- If the battery is inserted correctly but the charging indicator fails to light, the battery may be faulty. Replace it with a new battery.

memo

The estimated time required to fully charge the battery is about 140 minutes. (The charging time may vary depending on the ambient temperature and charging conditions.) The appropriate ambient temperature for charging the battery is 0°C to 40°C (32°F to 104°F).

Installing the Battery

Use the rechargeable lithium-ion battery D-LI106 that is provided with the camera. Charge the battery before using it in the camera for the first time.



1 Open the battery/card cover.

Slide the battery/card cover lock lever in the direction of the arrow to open the cover (①).

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2 Press the battery lock lever in the direction of ② and insert the battery so that the PENTAX logo is facing toward the monitor display.

Match the marks on the battery to the marks inside the battery compartment and push the battery in until it is locked in place.

Caution

Make sure that the battery is inserted with the PENTAX logo pointing toward the monitor display. If the battery is incorrectly oriented, malfunction may result.

3 Close the battery/card cover.

After closing the battery/card cover, slide the battery/card cover lock lever in the opposite direction of ①.

To Remove the Battery

1 Open the battery/card cover.

2 Press the battery lock lever in the direction of ②.

The battery will be ejected. Take care not to drop the battery when removing it.

Caution

- This camera uses a rechargeable lithium-ion battery D-LI106. Use of any other type of battery may damage the camera and cause a malfunction.
- Insert the battery correctly. If the battery is incorrectly oriented, malfunction may result.
- Do not remove the battery while the camera is turned on.
- When storing the battery for more than 6 months, charge the battery for 30 minutes using the battery charger and store the battery separately.
  Be sure to recharge the battery every 6 to 12 months. Storing the battery at or below room temperature is ideal. Avoid storing it in high temperatures.
- The date and time may be returned to the default setting if the camera is left without the battery for a long time.
- Be careful as the camera or the battery may become hot when the camera is used continuously for a long period of time.

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- **Image Storage Capacity, Movie Recording Time, and Playback Time**
  (at 23°C with the display on and the battery fully charged)

Image Storage Capacity*1 (flash used for 50% of shots)	Movie Recording Time*2	Playback Time*2
Approx. 255 pictures	Approx. 100 min.	Approx. 360 min.

*1 Image storage capacity shows the approximate number of shots recorded during CIPA-compliant testing (with display on, flash used for 50% of the shots, and 23 degrees centigrade).
*2 According to the result of in-house testing. Actual performance may vary according to operating conditions.

memo

- In general, battery performance may temporarily deteriorate as the temperature decreases.
- Be sure to take a spare battery with you when traveling abroad or to a cold region, or if you intend to take a lot of pictures.

- **Battery Level Indicator**

You can check the battery level by the indicator on the display.

Screen Display	Battery Status
(green)	Adequate power remains.
(green)	Battery is running low.
(yellow)	Battery is running very low.
(red)	Battery is exhausted.
[Battery depleted]	The camera will turn off after this message appears.

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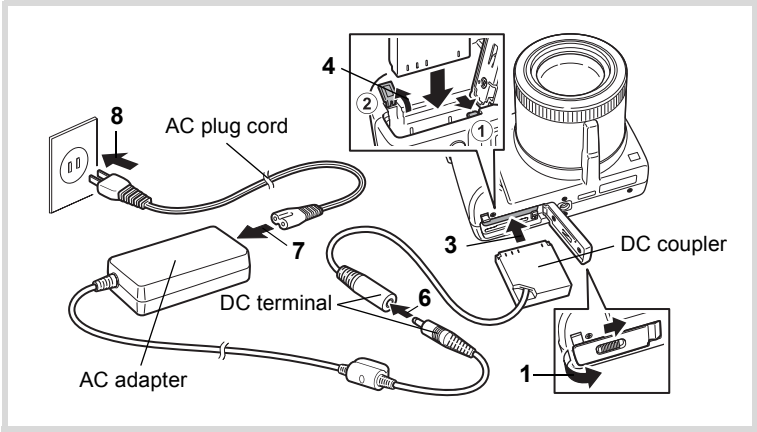
Using the AC Adapter

Use of the optional AC adapter kit (K-AC106) is recommended if you intend to use the camera for a long time or connect it to a computer.



1 Make sure that the camera is turned off and open the battery/card cover.

2 Remove the battery.

Refer to p.32 - p.33 on how to open/close the battery/card cover and remove the battery.

3 Insert the DC coupler while holding down the battery lock lever (①).

Confirm the DC coupler is locked in place.

4 Extract the DC coupler cord.

Pull open the connection cable cover (②) which is next to the battery/card cover, and pull out the cord from the DC coupler.

5 Close the battery/card cover.

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6 **Connect the DC terminal of the AC adapter to the DC terminal of the DC coupler.**

7 **Connect the AC plug cord to the AC adapter.**

8 **Plug the AC plug cord into the power outlet.**

Caution

- Make sure that the camera is turned off before connecting or disconnecting the AC adapter.
- Make sure that the AC plug cord and the power cord connecting the AC adapter to the camera are inserted securely. The data may be lost if either becomes disconnected while data is being recorded on the SD Memory Card or the built-in memory.
- Use the AC adapter with due care to avoid fire or electric shock. Be sure to read “About the Battery Charger and the AC Adapter” (p.2) before using the AC adapter.
- Be sure to read the operation manual accompanying the AC adapter kit K-AC106 before using the adapter.

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Installing the SD Memory Card

This camera uses either an SD Memory Card or an SDHC Memory Card. (Both cards are referred to as SD Memory Cards hereafter.) Captured images are saved on the SD Memory Card if a card is inserted in the camera. They are saved in the built-in memory if a card is not inserted (p.42).

Caution

- **Be sure to use this camera to format (initialize) an SD Memory Card that is unused or has been used on other cameras or digital devices. Refer to "Formatting an SD Memory Card" (p.200) for instructions on formatting.**
- Make sure that the camera is turned off before inserting or removing the SD Memory Card.

memo

- The still picture storage capacity varies depending on the capacity of the SD Memory Card and the selected number of recorded pixels and quality level (p.40).
- The power lamp blinks while the SD Memory Card is being accessed (data is being recorded or read).

Backing Up Data

The camera may not be able to access data in the built-in memory in the case of a malfunction. Use a computer or other device to back up important data in another location.

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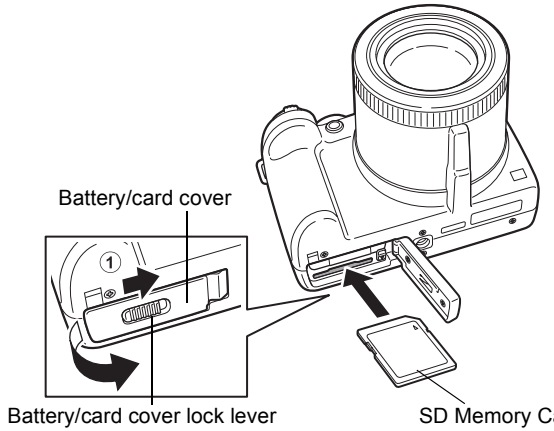

1 Open the battery/card cover.

Slide the battery/card cover lock lever in the direction of the arrow to open the cover (①).

2 Insert the SD Memory Card into the SD Memory Card socket so that the label is facing toward the front of the camera (the side with the lens).

Push the card in all the way. Data may not be recorded correctly if the card is not inserted all the way.

3 Close the battery/card cover.

After closing the battery/card cover, slide the battery/card cover lock lever in the opposite direction of ①.

To Remove the SD Memory Card

1 Open the battery/card cover.

2 Push the card into the SD Memory Card socket to eject it.

Pull the card out.

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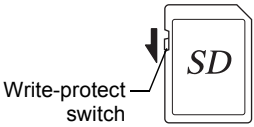
Precautions When Using an SD Memory Card



- The SD Memory Card is equipped with a write-protect switch. Setting the switch to LOCK prevents new data from being recorded on the card, the stored data from being deleted, and the card from being formatted by the camera or computer.
  appears on the display when the card is write-protected.
- Care should be taken when removing the SD Memory Card immediately after using the camera, as the card may be hot.
- Keep the cover closed and do not remove the SD Memory Card or turn the camera off while the data is being played back or saved to the card, or the camera is connected to a computer with the USB cable, as this may cause the data to be lost or the card to be damaged.
- Do not bend the SD Memory Card or subject it to violent impact. Keep it away from water and store away from high temperature.
- Do not remove the SD Memory Card during formatting as this may damage the card and render it unusable.
- The data on the SD Memory Card may be deleted in the following circumstances. We do not accept any liability for data that is deleted
  (1) when the SD Memory Card is mishandled by the user.
  (2) when the SD Memory Card is exposed to static electricity or electrical interference.
  (3) when the SD Memory Card has not been used for a long time.
  (4) when the SD Memory Card is ejected or the battery is removed while the data on the card is being recorded or accessed.
- If it is not used for a long time, the data on the card may become unreadable. Be sure to regularly make a backup of important data on a computer.
- Avoid using or storing the card where it may be exposed to static electricity or electrical interference.
- Avoid using or storing the card in direct sunlight or where it may be exposed to rapid changes in temperature or to condensation.
- When using an SD Memory Card with a slow recording speed, recording may stop while you are taking movies even when there is adequate space in the memory, or shooting and playback may take a long time.
- Be sure to format SD Memory Cards that are unused or have been used on another camera. Refer to “Formatting an SD Memory Card” (p.200).

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Number of Images Recordable on an SD Memory Card

The file size of the recorded images differs depending on the number of recorded pixels of the images, so the number of images that can be saved on an SD Memory Card also differs.

Choose the appropriate number of recorded pixels for still pictures on the [📷 Rec. Mode] menu.

Selecting the Recorded Pixels ☞p.121

Choose the appropriate number of recorded pixels and frame rate in [Movie] on the [📷 Rec. Mode] menu.

Selecting the Recorded Pixels and Frame Rate for Movies ☞p.142

For an approximate guide to the number of images or the length of recorded movies that can be saved on an SD Memory Card, see “Main Specifications” (p.254).

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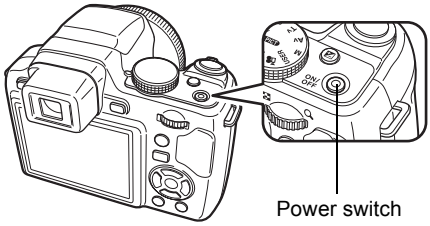
Turning the Camera On and Off



1 **Remove the lens cap.**

2 **Press the power switch.**

The camera turns on and the display turns on.
When you turn the camera on, the lens will extend. (The lens will not extend if the initial settings have not been configured.)
If the [Language/言語] screen or [Date Adjustment] screen appears when you turn the camera on, follow the procedure on p.43 or p.47 to set the display language and/or current date and time.

3 **Press the power switch again.**

The display turns off, the lens is retracted, and the camera turns off.

Taking Still Pictures ☞p.66

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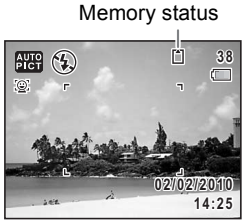
Checking the SD Memory Card

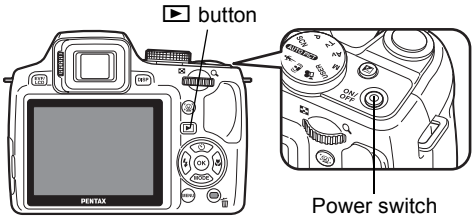
The SD Memory Card is checked when the camera turns on and the memory status is displayed.



	The SD Memory Card is inserted. Images and sounds will be saved on the SD Memory Card.
	The SD Memory Card is not inserted. Images and sounds will be saved in the built-in memory.
	The write-protect switch on the SD Memory Card is in the LOCK position (p.39). Images and sounds cannot be recorded.

Starting-up in the Playback Mode

If you want to play back images straightaway without taking any pictures, you can start up the camera in the playback mode.



1 Press the power switch while holding down the ▶ button.

The display turns on with the lens retracted and the camera turns on in the playback mode.

memo To switch from the playback mode to the 📷 mode, press the ▶ button or press the shutter release button halfway.

Playing Back Still Pictures ☞p.148

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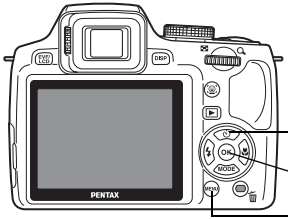
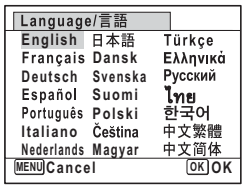
The [Language/言語] screen appears when the camera is turned on for the first time. Perform the operations in “Setting the Display Language” below to set the language, and in “Setting the Date and Time” (p.47) to set the current date and time.

The language, date, and time can be changed later. Refer to the pages below for instructions.
- To change the language, follow the steps in “Changing the Display Language” (☞p.208).
- To change the date and time, follow the steps in “Changing the Date and Time” (☞p.202).

Setting the Display Language



1 Use the four-way controller (▲▼◄►) to choose the display language.



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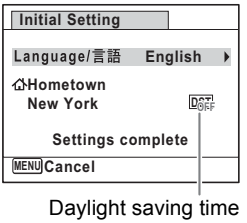
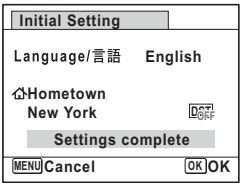
2 Press the OK button.

The [Initial Setting] screen appears in the selected language. If the desired settings for [Hometown] and [DST] (Daylight Saving Time) appear, proceed to Step 3.
Proceed to “To Set Hometown and DST” (p.46) if the desired settings do not appear.



3 Press the four-way controller (▼) twice to select [Settings complete].



4 Press the OK button.

The [Date Adjustment] screen appears. Set the date and time by following the procedure in “Setting the Date and Time” (p.47).

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If you accidentally select the wrong language and proceed to the next procedure, perform the following operation to set the desired language.

● **When the Wrong Language Has Been Inadvertently Selected**

1. **Press the four-way controller (▶).**
2. **Use the four-way controller (▲▼◀▶) to select the desired language and press the OK button.**
   The [Initial Setting] screen appears in the selected language.

● **When the Screen After Step 2 Appears in the Wrong Language**

1. **Press the MENU button.**
2. **Press the four-way controller (▶).**
3. **Use the four-way controller (▼▲) to select [Language/言語].**
4. **Press the four-way controller (▶).**
   The [Language/言語] screen appears.
5. **Use the four-way controller (▲▼◀▶) to select the desired language.**
6. **Press the OK button.**
   The [🔧 Setting] menu appears in the selected language.

The language is now switched to your desired language. To reset [Hometown], [Date] and [Time], refer to the pages below for instructions.

- To change [Hometown], follow the steps in “Setting the World Time” (☞p.205).
- To change the [Date] and [Time], follow the steps in “Changing the Date and Time” (☞p.202).

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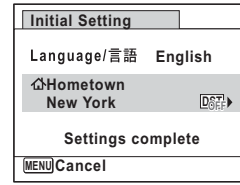
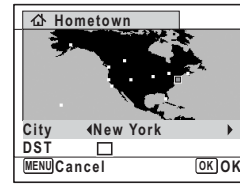
3 **Press the four-way controller (▼).**
The frame moves to [⌂ Hometown].

4 **Press the four-way controller (▶).**
The [⌂ Hometown] screen appears.



5 **Use the four-way controller (◀▶) to choose a city.**

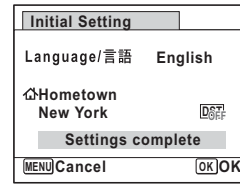


6 **Press the four-way controller (▼).**
The frame moves to [DST] (Daylight Saving Time).

7 **Use the four-way controller (◀▶) to select ☑ or □.**

8 **Press the OK button.**
The [Initial Setting] screen reappears.

9 **Press the four-way controller (▼) to select [Settings complete].**



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10 Press the OK button.

The [Date Adjustment] screen appears. Next, set the date and time.

The video output format (NTSC/PAL) is set to the format of the city selected in [Hometown] on the [Initial Setting] screen. Refer to “List of World Time Cities” (p.252) for the video output format of each city that will be set at the time of initial setting, and “To Select the Video Output Format” (p.171) for changing the video output format.

Setting the Date and Time

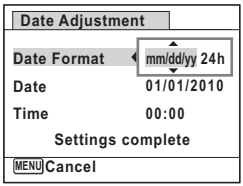
Set the current date and time and the display style.

1 Press the four-way controller (▶).

The frame moves to [mm/dd/yy].

2 Use the four-way controller (▲▼) to choose the date format.

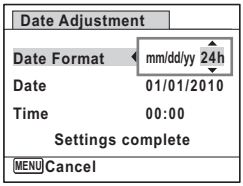
Choose from [mm/dd/yy], [dd/mm/yy] or [yy/mm/dd].



3 Press the four-way controller (▶).

The frame moves to [24h].

4 Use the four-way controller (▲▼) to select [24h] (24-hour display) or [12h] (12-hour display).



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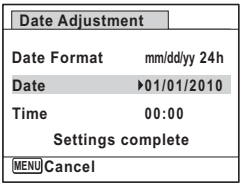
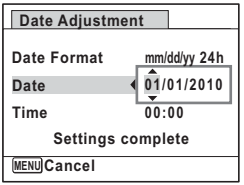
5 **Press the four-way controller (▶).**
The frame returns to [Date Format].

6 **Press the four-way controller (▼).**
The frame moves to [Date].

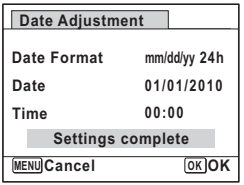


7 **Press the four-way controller (▶).**
The frame moves to the month.

8 **Use the four-way controller (▲▼) to change the month.**
Change the day and year in the same manner.
Next, change the time.
If you selected [12h] in Step 4, the setting switches between am and pm corresponding to the time.



9 **Press the four-way controller (▼) to select [Settings complete].**



10 **Press the OK button.**
This confirms the date and time.

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If you press the **OK** button in Step 10, the camera clock is reset to 00 seconds. To set the exact time, press the **OK** button when the time signal (on the TV, radio, etc.) reaches 00 seconds.

When the [Initial Setting] or [Date Adjustment] screen is displayed, you can cancel the settings made up to that point and switch to the capture mode by pressing the **MENU** button. In this case, the [Initial Setting] screen will appear again the next time you turn the camera on.

[Language/言語], [Date], [Time], [Hometown] and [DST] can be changed. Refer to the pages below for instructions.

- To change the language, follow the steps in “Changing the Display Language” (☞p.208).
- To change the date and time, follow the steps in “Changing the Date and Time” (☞p.202).
- To change the city or DST setting, follow the steps in “Setting the World Time” (☞p.205).

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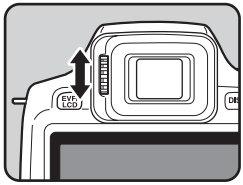
Adjusting the Viewfinder Diopter

Adjust the viewfinder to suit your eyesight.
If it is difficult to see the viewfinder image clearly, turn the diopter adjustment dial up or down.

1 **Press the EVF/LCD button and switch to the viewfinder.**

2 **Look through the viewfinder and turn the diopter adjustment dial up or down.**

Adjust the dial until the image in the viewfinder appears clearly focused.
Point the camera at a white wall or other bright and consistent surface.



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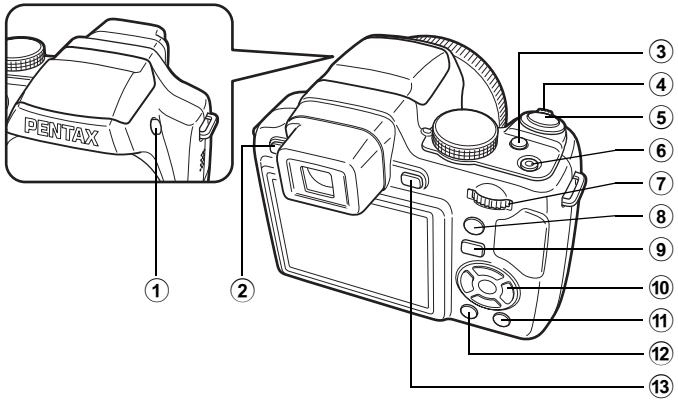
Mode



① **⚡ button**
The flash pops up.

② **EVF/LCD button**
Switches between the viewfinder and the monitor display.

③ **± button**
Sets the EV compensation value, shutter speed, and the aperture value.

④ **Zoom lever**
Changes the captured area (p.74).

⑤ **Shutter release button**
Focuses the camera on the subject when pressed halfway in still picture capture mode (except when ▲ (Infinity) or **MF** is selected as the focus mode). Takes a still picture when pressed down fully (p.68). Starts and stops movie recording in 🎥 (Movie) mode (p.140).

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⑥ **Power switch**

Turns the camera on and off (p.41).

⑦ **e-dial**

Changes the EV compensation value, shutter speed, and aperture value.

⑧ **(Face) button**

Switches the Face Detection function (p.70). The Face Detection function is switched as follows each time the button is pressed: Smile Capture → Face Detection Off → Face Detection On

⑨ **button**

Switches to the mode (p.56).

⑩ **Four-way controller**

- ▲ Changes the drive mode (p.92 - p.97).
- ▼ Displays the Capture Mode Palette when the mode dial is set to SCN (p.79).
- ◀ Changes the flash mode (p.112).
- ▶ Changes the focus mode (p.114).
- ▲▼ Adjusts the focus when the focus mode is set to **MF** (p.115).

⑪ **(Green) button**

Switches to the (Green) mode (p.72).
Calls up the assigned function when set to [Fn Setting] (p.137).

⑫ **MENU button**

Displays the [Rec. Mode] menu (p.57).

⑬ **DISP button**

Changes the information on the display (p.20).

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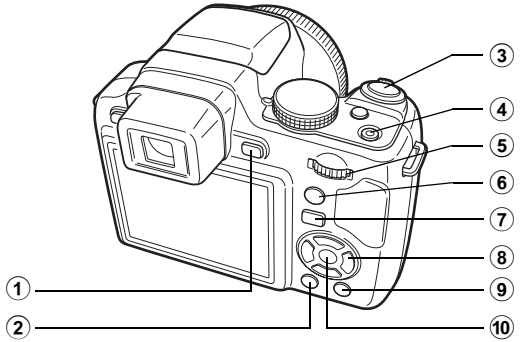
Mode



① DISP button

Changes the information on the display (p.24).

② MENU button

Displays the [🔧 Setting] menu during single-image display (p.57).
Returns to single-image display during Playback Mode Palette display.
Returns to single-image display during four-/nine-image display or zoom display.
Switches from folder/calendar display to nine-image display with the cursor placed on the most recent image.

③ Shutter release button

Switches to 📷 mode (p.56).

④ Power switch

Turns the camera on and off (p.41).

⑤ e-dial

Turn to the left (⊠) during single-image display to change to four-image display. Changes to nine-image display when turned to the left again. Returns to the previous display when turned to the right (🔍) (p.150). Enlarges the image when turned to the right (🔍) during single-image display. Returns to the previous display when turned to the left (⊠) (p.158). Turn to the left (⊠) during nine-image display to change to folder or calendar display (p.151).

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Turn to the right (Q) during folder/calendar display to change to nine-image display (p.151).
Adjusts the volume during playback of movies or voice memos (p.149, p.197).

⑥ **(Face) button**

Zooms in on the subjects' faces in a face-detected image in the order the faces were detected when the picture was taken. (Face close-up playback) (p.159).

⑦ **button**

Switches to mode (p.56).

⑧ **Four-way controller**

- ▲ Plays back and pauses a movie or voice memo (p.149, p.197).
- ▼ Displays the Playback Mode Palette (p.154).
  Stops a movie or voice memo during playback (p.149, p.197).
- ◀ ▶ Displays the previous or next image during single-image display (p.148).
  Fast-forwards, fast-reverses, frame forwards, frame reverses, reverses a movie and makes a movie play forwards during playback (p.149).
- ▲▼◀▶ Selects an image during four-/nine-image display, a folder during folder display, and a date during calendar display (p.150, p.151).
  Moves the display area during zoom display (p.158).
  Moves the image when using the Frame Composite function (p.186).

⑨ **(Green)/ (Delete) button**

Switches from single-image display to the Delete screen (p.161).
Switches from four-/nine-image display to the Select & Delete screen (p.162).
Switches from folder display to the calendar display screen (p.151).
Switches from calendar display to the folder display screen (p.151).

⑩ **OK button**

Returns to single-image display during four-/nine-image display or zoom display (p.150, p.158).
Changes to nine-image display of the selected folder during folder display (p.151).
Changes to single-image display of the selected date during calendar display (p.151).

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Switching Between 📷 Mode and ▶ Mode

In this manual, the capture mode, such as for taking still pictures, is referred to as "📷 mode" (the capture mode). The playback mode, such as for displaying captured images on the monitor, is referred to as "▶ mode" (the playback mode). In ▶ mode, you can perform simple editing operations on the images that are played back.

Follow the procedure below to switch between 📷 mode and ▶ mode.

To Switch from 📷 Mode to ▶ Mode

1 **Press the ▶ button.**

The camera switches to ▶ mode.

To Switch from ▶ Mode to 📷 Mode

1 **Press the ▶ button or the shutter release button halfway.**

The camera switches to 📷 mode.

Displaying the data stored in the built-in memory

When an SD Memory Card is inserted in the camera, images and movies on the SD Memory Card are displayed. If you want to display images and movies in the built-in memory, turn the camera off and remove the SD Memory Card, or follow the procedure below to use the "Built-in memory display" function.

Caution Make sure that the camera is turned off before inserting or removing the SD Memory Card.

- **Viewing images in the built-in memory while the SD Memory Card is inserted (built-in memory display)**
  - When you press and hold down the ▶ button for more than one second in 📷 mode, the lens is retracted. After the message [Displays image/sound from built-in memory] appears, images and movies stored in the built-in memory are displayed.
  - In the built-in memory display, you can play back still pictures (including enlarged display) (p.148, p.158) or movies (p.149) and switch between four-/nine-image display, folder display and calendar display (p.150).
  - In the built-in memory display, you cannot delete data, delete a selection, display the Playback Mode Palette or display the menu. If you want to perform any of these operations on images, movies or sounds in the built-in memory, do so after removing the SD Memory Card.

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Setting the Camera Functions

To change the camera settings, press the **MENU** button to display the [📷 Rec. Mode] menu or [🔧 Setting] menu. Menus for playing back and/or editing images and sounds are called up from the Playback Mode Palette.

Operating the Menus

Press the **MENU** button in 📷 mode to display the [📷 Rec. Mode] menu. Press the **MENU** button in ▶ mode to display the [🔧 Setting] menu. Use the four-way controller (◀ ▶) to switch between [📷 Rec. Mode] menu and [🔧 Setting] menu.

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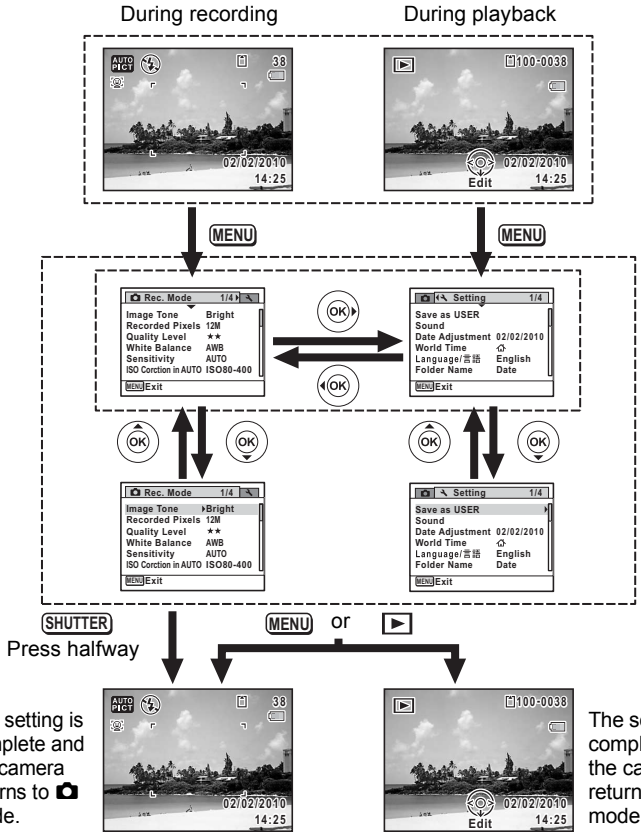

The setting is complete and the camera returns to 📷 mode.

The setting is complete and the camera returns to ▶ mode.

memo Available button/key operations appear on the display during menu operation (p.26).

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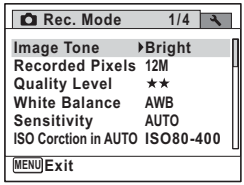
Ex.) To set [Quality Level] on the [📷 Rec. Mode] menu

1 Press the MENU button in 📷 mode.

The [📷 Rec. Mode] menu appears.

2 Press the four-way controller (▼).

The frame moves to [Image Tone].

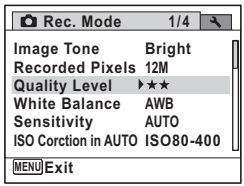


3 Press the four-way controller (▼) twice.

The frame moves to [Quality Level].

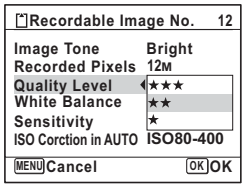
4 Press the four-way controller (▶).

A pull-down menu appears with the items that can be selected.
The pull-down menu displays only those items that can be selected with the current camera settings.



5 Use the four-way controller (▲▼) to change the setting.

The quality level changes each time the four-way controller (▲▼) is pressed.



6 Press the OK button or the four-way controller (◀).

The setting is saved and then the camera is ready for setting the other functions. To exit the setting operation, press the **MENU** button.

To use another operation, refer to the following alternate Step 6 options.

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To Save the Setting and Start Taking Pictures

6 **Press the shutter release button halfway.**

The setting is saved and the camera returns to capture status.
When the shutter release button is pressed fully, the picture is taken.

memo When the [🔧 Setting] menu is displayed from ▶ mode, you can switch to 📷 mode by pressing the ▶ button.

To Save the Setting and Start Playback of Images

6 **Press the ▶ button.**

When the [📷 Rec. Mode] menu is displayed from 📷 mode, the setting is saved and the camera returns to playback status.

To Cancel the Changes and Continue with Menu Operations

6 **Press the MENU button.**

The changes are canceled and the screen shown in Step 3 reappears.

memo The **MENU** button function differs depending on the screen. Refer to the guide indications.

MENU Exit	Exits the menu and returns to the original screen.
MENU ↩	Returns to the previous screen with the current setting.
MENU Cancel	Cancels the current selection, exits the menu and returns to the previous screen.

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Menu List

This displays the items that can be set with the menus and provides descriptions of each item. See the list of default settings in the Appendix "Default Settings" (p.247) to check whether the settings are saved when the camera is turned off and whether the settings return to the defaults when the camera is reset.

[📷 Rec. Mode] Menu

This menu shows the functions related to taking still pictures and recording movies.

Item		Description	Page
Image Tone		For setting the tone of still pictures	p.120
Recorded Pixels		For choosing the number of recorded pixels of still pictures	p.121
Quality Level		For setting the quality level of still pictures	p.123
White Balance		For adjusting the color balance according to the lighting conditions	p.124
Sensitivity		For setting the sensitivity	p.126
ISO Corction in AUTO		For setting the adjustment range when sensitivity is set to AUTO	p.127
AF Setting	Focusing Area	For setting the area of the autofocus	p.117
	Auto Macro	For adjusting the focus up to the macro range if necessary	p.118
	Focus Assist	For discharging an assist light when the subject is in a dark area and the autofocus system does not operate correctly	p.119
AE Metering		For choosing the area of the screen that is metered to determine the exposure	p.128
Flash Exp. Comp.		For adjusting the flash output	p.129
Movie	Recorded Pixels	For choosing the number of recorded pixels and frame rate of movies	p.142
	Movie SR	For choosing whether or not to use the movie shake reduction function	p.143
D-Range Setting	Highlight Correction	For adjusting the bright areas when the image is too bright	p.130
	Shadow Correction	For adjusting the dark areas when the image is too dark	
Shake Reduction		For choosing whether to compensate for camera shake while taking still pictures	p.131
Interval Shoot	Interval	For setting the interval between shots	p.94
	Number of Shots	For setting the number of shots to be taken	
	Start Delay	For setting the start time for interval shooting	

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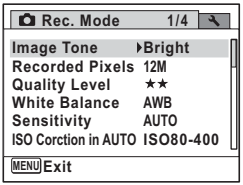
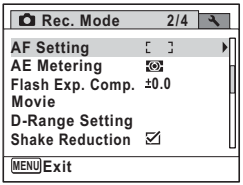
Blink Detection	For choosing whether to use the Blink Detection function when the Face Detection function is activated	p.132
Digital Zoom	For choosing whether to use the Digital Zoom function	p.76
Instant Review	For choosing whether to display Instant Review	p.133
Memory	For choosing whether to save the set values of the shooting function or return to the defaults when the camera is turned off	p.144
Green Button	For assigning a function to the ● button so that you can go straight to it in 📷 mode	p.137
Sharpness	For choosing sharp or soft outlines	p.134
Saturation (Tone Adjustment)	For setting the color saturation. When [Monochrome] is selected, [Tone Adjustment] is displayed	p.134
Contrast	For setting the image contrast level	p.135
Date Imprint	For choosing whether to imprint the date and/or time when taking still pictures	p.136

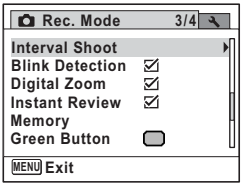
● **[📷 Rec. Mode] Menu 1**



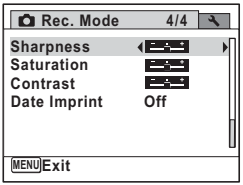
● **[📷 Rec. Mode] Menu 2**



● **[📷 Rec. Mode] Menu 3**



● **[📷 Rec. Mode] Menu 4**



memo

- Use the ● (Green) mode to enjoy easy picture-taking using standard settings, regardless of the settings in the [📷 Rec. Mode] menu (p.72).
- Assigning frequently used functions to the Green button enables you to go straight to the desired function (p.137).

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[🔧 Setting] Menu

Item	Description	Page
Save as USER	For saving the current camera settings in USER mode	p.110
Sound	For adjusting the operation volume and playback volume, and setting the start-up sound, shutter sound, key operation sound and self-timer sound	p.201
Date Adjustment	For adjusting the date and time	p.202
World Time	For setting the Hometown and Destination	p.205
Language/言語	For setting the language in which menus and messages appear	p.208
Folder Name	For choosing how names are assigned to folders for storing images and sounds	p.209
USB Connection	For setting the method of connecting the camera to a computer (MSC or PTP)	p.225
Video Out	For setting the output format to the AV device	p.171
HDMI Out	For setting the HDMI output format when connecting the camera to an AV device with an HDMI terminal	p.173
Eye-Fi	For setting when transferring images using an SD Memory Card with a built-in wireless LAN (Eye-Fi card)	p.235
Brightness Level	For changing the brightness of the display	p.210
Power Saving	For setting the time until the camera enters power-saving mode	p.210
Auto Power Off	For setting the time until the camera turns off automatically	p.212
Quick Zoom	For choosing whether to use the Quick Zoom function (p.158) when playing back images	p.213
Guide Display	For setting whether to display explanations for selected items in Capture Mode Palette and Playback Mode Palette displays	p.214
Reset	For returning settings other than the date and time, language, world time and video out settings to their defaults	p.217
Delete All	For deleting all the saved images and sounds at once	p.164
Pixel Mapping	For mapping out and correcting any defective pixels in the CCD sensor	p.216
Format	For formatting the SD Memory Card	p.200

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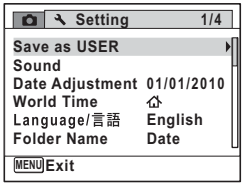
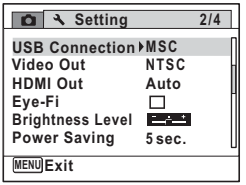
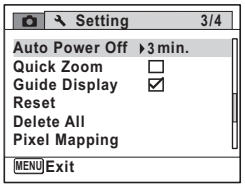
● [Setting] Menu 1



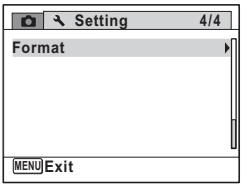
● [Setting] Menu 2



● [Setting] Menu 3



● [Setting] Menu 4



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3 Taking Pictures

Taking Still Pictures 66
Selecting the Shooting Mode 78
Selecting the Shooting Mode According to the Situation 82
Various Shooting Methods 90
Setting the Exposure 103
Setting the Shooting Functions 112
Recording Movies 140
Saving the Settings (Memory) 144

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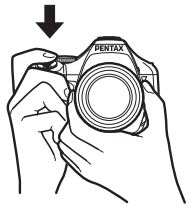
Holding the Camera

How you hold the camera is important when taking pictures.

- Hold the camera firmly with both hands.
- Press the shutter release button gently when taking a picture.



Horizontal position

Vertical position

memo To reduce camera shake, support your body or the camera on a solid object such as a table, tree, or wall.

Taking Pictures

The X90 features various capture modes, focus modes, and drive modes for expressing your photographic vision. This section explains how to take pictures using AUTO PICT (Auto Picture) mode, by simply pressing the shutter release button.

In AUTO PICT mode, the camera automatically selects the most appropriate mode depending on the situations and subjects.

1 Remove the lens cap.

2 Press the power switch.

The camera turns on and is ready to take still pictures. In this manual, this is called “still picture capture mode”.

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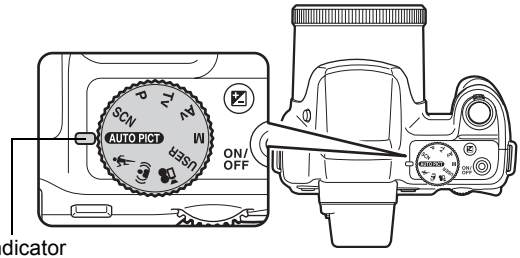
3 Set the mode dial to AUTO PICT.

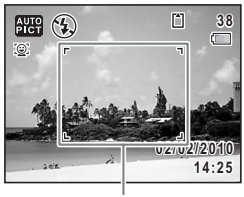
The camera will select the optimal capture mode for the subject.



Dial indicator

4 Confirm the subject and shooting information on the display.

The focus frame in the middle of the display indicates the zone of automatic focusing.



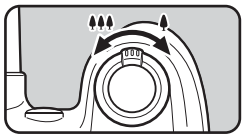
Focus frame

When the camera detects a person's face, the Face Detection function is activated and the face detection frame appears (p.70).

Face detection frame

You can change the captured area by turning the zoom lever to the right or left (p.74).

Right ( ) Enlarges the subject.
Left ( ) Widens the area that is captured by the camera.



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5 Press the shutter release button halfway.

The selected shooting mode is displayed on the top left of the screen.

Standard	Night Scene	Night Scene Portrait
Landscape	Flower	Portrait
Sport		

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.
To use the flash, press the ⚡ button to pop up the flash. (p.114)

6 Press the shutter release button fully.

The picture is taken.
The flash discharges automatically depending on the light conditions.
The captured image appears on the display (Instant Review: p.70) for one second and is saved to the SD Memory Card or the built-in memory.

memo

The following restrictions apply in AUTO PICT mode:

- You cannot turn the Face Detection function off.
- The focusing area setting is fixed at [ ] (Multiple).
- The (Flower) mode cannot be selected when using Digital Zoom or Intelligent Zoom.
- If the (Night Scene) mode is selected when the flash mode is ⚡A (Auto), the flash mode automatically changes to (Flash Off).
- If the (Night Scene) mode is selected when the flash mode is set to a mode other than ⚡A (Auto), the flash mode set before the shooting mode was selected is used. However, when discharging the flash, the flash mode is set to SLOW (Slow-speed Sync).
- When the drive mode is set to (Burst Shooting(L)), Burst Shooting(M)), or (Burst Shooting(H)), pictures are taken continuously in the shooting mode first selected.
- The camera automatically focuses on the subject when [Auto Macro] is set to (On), and the focus mode is set to **AF** (Standard) or (Macro).

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To Use the Shutter Release Button

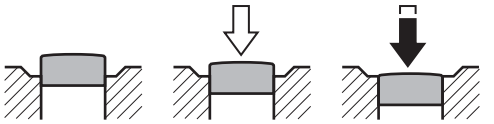
The shutter release button works in a two-step action as follows.

Press halfway

This refers to pressing the shutter release button gently to the first position. This locks the focus setting and the exposure. The green focus frame lights on the display when the shutter release button is pressed halfway and the subject is in focus. If the subject is out of focus, the frame turns white.

Press fully

This refers to pressing the shutter release button all the way down to the fully depressed position. This takes a picture.



Not pressed | Pressed halfway (first position) | Pressed fully (second position)

- Press the shutter release button gently when taking a picture to prevent camera shake.
- Practice pressing the shutter release button halfway/fully to learn where the first position and second position are.

Subjects that are difficult to focus on

The camera may not be able to focus under the following conditions. In these cases, lock the focus on an object the same distance away as the subject (by pressing and holding the shutter release button halfway), then aim the camera at your subject and press the shutter release button fully.

- Objects that lack contrast such as a blue sky or white wall
- Dark places or objects, or conditions that prevent light being reflected back
- Horizontal lines or intricate patterns
- Fast moving objects
- When there is an object in the foreground and an object in the background in the captured area
- Strongly reflected light or strong backlighting (bright background)

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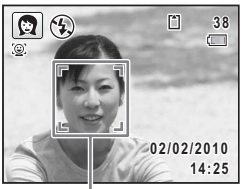
Instant Review and Blink Detection

The image appears for 1 second on the monitor shortly after capturing (Instant Review). If the camera detects that the subject's eyes are closed while the Face Detection function is activated, the message [Closed eyes have been detected] appears for 3 seconds (Blink Detection).

- When the Face Detection function does not work, Blink Detection also does not function. Even if the subjects' faces are detected, Blink Detection may not function depending on the condition of the detected faces.
- You can also disable the Blink Detection function (p.132).

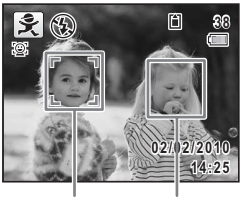
Using the Face Detection Function

With the X90, the Face Detection function is available with all shooting modes.
When the camera detects a person's face in the image, the Face Detection function displays a yellow face detection frame around the face on the display screen, sets the focus (Face Detection AF) and compensates the exposure (Face Detection AE).
If the subject in the face detection frame moves, the frame also moves and changes its own size as it tracks the face.
The Face Detection function can detect up to 32 people's faces. If it detects multiple faces, the camera displays a yellow frame over the main face and white frame(s) over the other face(s). It can display up to a total of 31 frames (or up to 30 frames in Half-length Portrait mode) including a main frame and white frame(s).



Face detection frame

When the multiple faces are detected



Main frame White frame

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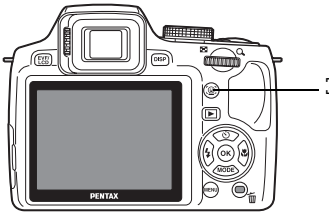
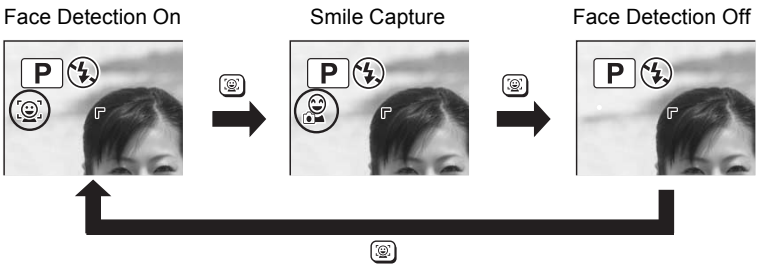
- Face Detection AF and AE may not work if the subject is wearing sunglasses, has part of their face covered or is not looking toward the camera.
- If the camera cannot detect the subject's face, the camera focuses using the setting currently selected in [Focusing Area].
- When the Smile Capture function is set, the shutter may not be released automatically because the Smile Capture function may not work in some situations, such as when the detected face is too small. If this happens, press the shutter release button to release the shutter.

To Switch the Face Detection Function

By default, the Face Detection function is set to Face Detection On. You can switch to the Smile Capture function, which automatically releases the shutter when your subject smiles. The Face Detection function is switched as follows each time the button is pressed:
Smile Capture → Face Detection Off → Face Detection On



An icon indicating either Face Detection On or Smile Capture appears on the display.



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- The Face Detection function cannot be set to off in AUTO PICT (Auto Picture), (Portrait), (Half-length Portrait), (Night Scene Portrait), (Baby) or (Kids) mode. In these modes, the Face Detection function is always activated, and only either Face Detection On or Smile Capture can be selected.
- Even if the Face Detection function is set to off, it is automatically turned on when AUTO PICT (Auto Picture), (Green), (Portrait), (Half-length Portrait), (Night Scene Portrait), (Baby), (Kids) or (Movie) mode is selected. When switching to another mode from one of these modes, the Face Detection setting returns to the previous setting.
- If the Face Detection function is activated when the flash mode is set to (Auto), the flash mode automatically changes to (Flash On + Red-eye) when discharging the flash.

Taking Pictures in the Basic Mode (Green Mode)

In (Green) mode, you can enjoy easy picture-taking using standard settings, regardless of the settings in the [Rec. Mode] menu. The mode settings are as shown below.

Drive Mode	(Standard)
Flash Mode	(Auto)
Focus Mode	**AF** (Standard)
Face Detection function	(On)
Information Display	Normal
EV Compensation	±0.0
Image Tone	Bright
Recorded Pixels	12M (4000 × 3000)
Quality Level	★★ (Better)
White Balance	**AWB** (Auto)
Sensitivity	AUTO
ISO Corction in AUTO	ISO 80-800
Focusing Area	[ ] (Multiple)
Auto Macro	☑ (On)

Focus Assist	☑ (On)
AE Metering	(Multi-segment metering)
Flash Exposure Compensation	±0.0
Highlight Correction	□ (Off)
Shadow Correction	□ (Off)
Shake Reduction	☑ (On)
Blink Detection	☑ (On)
Digital Zoom	☑ (On)
Instant Review	☑ (On)
Sharpness	(Normal)
Saturation	(Normal)
Contrast	(Normal)
Date Imprint	Off

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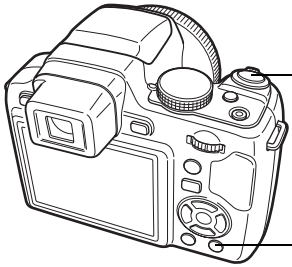

1 Press the button in mode.

The camera switches to mode.

Press the button again to return to the status before mode was selected.

When the camera detects a person's face, the Face Detection function is activated and the face detection frame appears. (p.70)

To use the flash, press the button to pop up the flash. (p.114)

2 Press the shutter release button halfway.

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.

3 Press the shutter release button fully.

The picture is taken.

memo

- The mode is available only when it is assigned to the Green button in [Green Button] of the [Rec. Mode] menu. By default, the mode is assigned to the button.
- In mode, you cannot change the information on the display by pressing the **DISP** button.
- If you press the **MENU** button in mode, the [Setting] menu appears. The [Rec. Mode] menu cannot be displayed.

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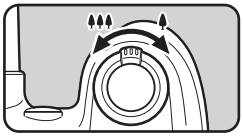
Using the Zoom

You can use the zoom to change the captured area.

1 Turn the zoom lever in 📷 mode.

Right ( ) Enlarges the subject.
Left ( ) Widens the area that is captured by the camera.

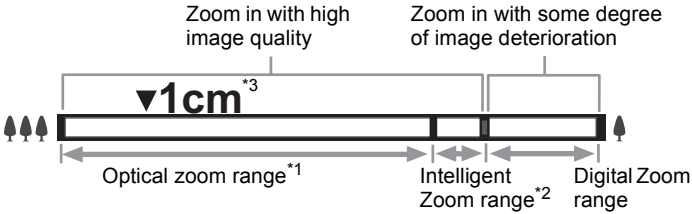


If you continue turning the lever to the right ( ), the camera automatically switches from optical zoom to Intelligent Zoom and stops at the point it switches to Digital Zoom.
Once the lever is released and turned again, the camera switches to Digital Zoom.

Green: Intelligent Zoom
White: Digital Zoom

Zoom bar
Zoom ratio

The zoom bar is displayed as follows:


Zoom in with high image quality
Zoom in with some degree of image deterioration
1cm*3
Optical zoom range*1
Intelligent Zoom range*2
Digital Zoom range

*1 You can zoom in to a maximum of 26× optically.
*2 The Intelligent Zoom range differs depending on the number of recorded pixels. See the following table.
*3 When the focus mode is set to 1cm (1cm Macro), the zoom position is fixed.

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Recorded pixels and the maximum zoom ratio

Recorded Pixels	Intelligent Zoom	Digital Zoom
12M	Not Available (26× optical zoom only)	Equivalent to approx. 162.5×
10.7M 3:2		
9M 16:9		
9M 1:1		
7M	Equivalent to approx. 33.9×	
5M	Approx. 40.1×	
3M	Approx. 50.8×	
1024	Approx. 101.6×	
640	Approx. 162.5× (Same as Digital Zoom)	

- It is recommended to use a tripod to prevent camera shake when taking pictures at high zoom.
- Pictures taken in the Digital Zoom range appear grainier than pictures taken in the optical zoom range.
- Intelligent Zoom and Digital Zoom are not available when the sensitivity is set to 3200 or higher.
- Intelligent Zoom is not available under the following conditions:
  - when the number of recorded pixels is set to 12M / 10.7M 3:2 / 9M 16:9 / 9M 1:1 (26× optical zoom and Digital Zoom are available)
  - in (Digital SR) mode (only 26× optical zoom is available)
- The image enlarged using Intelligent Zoom may appear rough on the display. This does not affect the quality of the recorded image.
- Only Digital Zoom is available while recording a movie in (Movie) mode.

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To Set the Digital Zoom

The Digital Zoom is set to ☑ (On) in the default setting. To take pictures using only the optical zoom and Intelligent Zoom range, set the Digital Zoom to □ (Off).

1 **Press the MENU button in 📷 mode.**

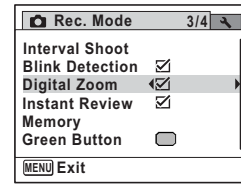
The [📷 Rec. Mode] menu appears.

2 **Use the four-way controller (▲▼) to select [Digital Zoom].**

3 **Use the four-way controller (◄►) to select ☑ or □.**

- ☑ Uses Digital Zoom
- □ Uses only optical zoom and Intelligent Zoom

The setting is saved.



4 **Press the MENU button.**

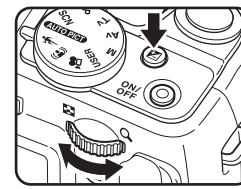
The camera returns to capture status.

Saving the Digital Zoom Function setting ☞p.144

Adjusting the Exposure

You can adjust the overall brightness of the picture.
Use this function to take pictures that are intentionally overexposed or underexposed.

1 **Press the ± button in 📷 mode.**



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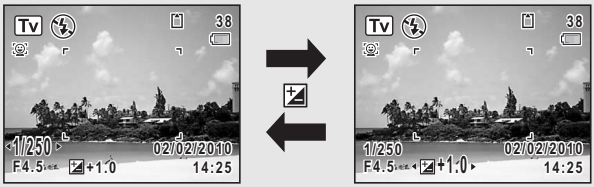
2 Turn the e-dial.

To brighten, select a positive (🔍) value. To darken, select a negative (🔲) value.
You can choose the EV compensation value with a range of ±2.0 EV in increments of 1/3 EV.

3 Press the ± button.

EV compensation value is saved and the camera returns to capture status.

- EV compensation value is always displayed on the monitor when set to a value other than ±0.0. When set to ±0.0, it disappears after being displayed for 2 seconds at the bottom of the screen.
- In ● (Green) or AUTO PICT (Auto Picture) mode, EV compensation value is fixed at ±0.0.
- In **M** (Manual Exposure) mode, EV compensation is unavailable.
- The EV compensation value displayed on the screen is enlarged when you press the ± button.



Normal Display When the ± button is pressed

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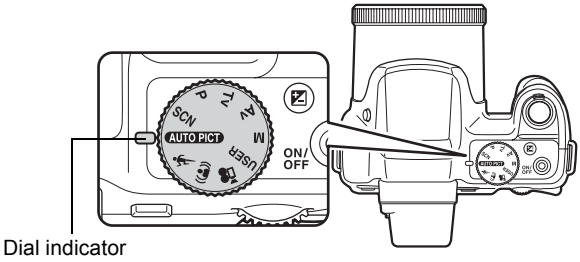
Selecting the Shooting Mode

You can switch the shooting modes by setting the icons on the mode dial to the dial indicator.



Dial indicator

The X90 features various shooting modes, enabling you to take pictures with settings suited to your photographic vision.
In this manual, shooting modes are referred to as follows.

Shooting Modes	Type	Page
Picture modes	AUTO PICT (Auto Picture)/ (Sport)/ (Digital SR)	p.79
SCN (Scene) modes	(Landscape)/ (Flower)/ (Portrait)/ (Backlight)/ (Half-length Portrait)/ (Night Scene)/ (Night Scene Portrait)/ (Stage Lighting)/ (Surf & Snow)/ (Baby)/ (Kids)/ (Pet)/ (Food)/ (Fireworks)/ (Frame Composite)/ (Party)/ (Museum)/ (Sunset)/ WIDE (Digital Wide)/ (Digital Panorama)	p.79
Exposure modes	P (Program)/Tv (Shutter Priority)/ Av (Aperture Priority)/M (Manual Exposure)/ USER (USER)	p.81
Movie mode	(Movie)	p.140

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Picture Modes

There are 3 shooting modes, AUTO PICT (Auto Picture), (Sport) and (Digital SR).
The characteristics of each mode are as follows.

Modes	Characteristics	Page
AUTO PICT Auto Picture	The optimal capture mode is selected automatically from standard settings.	p.66
Sport	For a fast moving subject. Tracks the subject until the picture is taken.	p.87
Digital SR	Higher sensitivity reduces blur.	p.82

SCN Modes

By setting the mode dial to SCN (Scene), you can choose from the following 20 shooting modes.

Shooting Modes	Description	Page
Landscape	For capturing landscape views. Enhances colors of sky and foliage.	—
Flower	For images of flowers. The outline of the flower is softened.	—
Portrait	For capturing portraits. Reproduces a healthy and bright skin tone.	p.83
Backlight	For backlit images. Please use flash to properly expose the subject.	p.86
Half-length Portrait	For portraits with proper framing by automatic zoom. (Fixed to 3M (2048×1536).)	p.83
Night Scene	For night time images. Use of a tripod or other support is suggested.	p.82
Night Scene Portrait	For images of people at night. Use of a tripod or other support is advised.	p.82
Stage Lighting	For moving subjects on poorly lit stages.	—
Surf & Snow	For bright images such as sand or snow. Accurately meters for bright scenes.	p.87
Baby	For images of babies. Captures bright images of a baby's expressions.	p.83
Kids	For capturing moving kids. Reproduces a healthy and bright skin tone.	p.84

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Shooting Modes	Description	Page
Pet	For capturing moving pets. Select the color according to the pet's coat.	p.85
Food	For images of food and prepared dishes. Enhances saturation and contrast.	—
Fireworks	For capturing fireworks. Use of a tripod or other support is suggested.	p.82
Frame Composite	For capturing images with a frame. The number of recorded pixels is fixed at 3M (2048×1536).	p.90
Party	For capturing images at parties or in dim light. Increases ISO and clarity.	p.88
Museum	For capturing images in places where a flash is prohibited.	—
Sunset	For images of sunsets and warm lighting.	—
WIDE Digital Wide	Stitches two pictures together to create a wider image.	p.98
Digital Panorama	Stitches images taken with the camera to create a panoramic photograph.	p.100

memo Some functions may not be available or may not work fully depending on the selected shooting mode. For details, refer to "Functions Available for Each Shooting Mode" (p.238).

1 Set the mode dial to SCN.

The camera enters the SCN mode last selected. The default setting is (Landscape).

2 Press the four-way controller (▼).

The Capture Mode Palette appears.

3 Use the four-way controller (▲▼◄►) to choose a shooting mode.

When an icon is selected in the Capture Mode Palette, the guide for the selected shooting mode appears.

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4 **Press the OK button.**

The shooting mode is fixed and the camera returns to capture status.

To use the flash, press the ⚡ button to pop up the flash. (p.114)

Exposure Modes

Use the exposure modes to change the sensitivity, shutter speed and aperture value and take pictures according to your own photographic vision.

Shooting Modes		Description	Page
P	Program	This mode automatically sets the shutter speed and aperture value to the proper exposure according to Program Line. Use the e-dial to change the shutter speed and aperture value while maintaining the proper exposure.	p.104
Tv	Shutter Priority	This lets you set the desired shutter speed for expressing moving subjects. You can take pictures of fast moving subjects that look still or subjects that give a sense of movement.	p.106
Av	Aperture Priority	Lets you set the desired aperture value for controlling the depth of field. Use it to obtain a blurred or sharp background.	p.107
M	Manual Exposure	Lets you set the shutter speed and aperture value to capture the picture with creative intent.	p.108
USER	USER	Lets you use previously-saved settings defined by the user.	p.111

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Taking Pictures of Dark Scenes (Digital SR/Night Scene/Night Scene Portrait/Fireworks Mode)

You can choose a shooting mode appropriate for taking pictures of dark scenes, such as nightscapes.

Picture Mode	Digital SR	Higher sensitivity reduces blur. The sensitivity is automatically set to AUTO and the number of recorded pixels is fixed at 5M (2592×1944).
SCN Modes	Night Scene	For night time images. Use of a tripod or other support is suggested.
	Night Scene Portrait	For images of people at night. Use of a tripod or other support is advised. If the Face Detection function is activated and the flash mode is set to $\$_A$ (Auto), the flash mode automatically changes to $\$_{\text{RED}}$ (Flash On + Red-eye) when discharging the flash.
	Fireworks	For capturing fireworks. Use of a tripod or other support is suggested. The sensitivity is fixed to the minimum value.

1 **In 📷 mode, set the mode dial to Digital SR or SCN.**

If you set the mode dial to Digital SR, proceed to Step 5.

2 **Press the four-way controller (▼).**

The Capture Mode Palette appears.

3 **Use the four-way controller (▲▼◀▶) to select Night Scene, Night Scene Portrait or Fireworks.**

4 **Press the OK button.**

The shooting mode is selected and the camera returns to capture status.

When the camera detects a person's face, the Face Detection function is activated and the face detection frame appears. (p.70)

To use the flash, press the ⚡ button to pop up the flash. (p.114)

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5 Press the shutter release button halfway.

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.

6 Press the shutter release button fully.

The picture is taken.

- The shutter speed tends to be slower when taking pictures of dark scenes.
- To prevent camera shake, set the Shake Reduction function to ☑ (On) (p.132) or use a tripod and/or the self-timer function (p.92).

Taking Pictures of People (Portrait/Half-length Portrait/Baby Mode)

The (Portrait), (Half-length Portrait) and (Baby) modes are suitable for taking pictures of people. The Face Detection function (p.70) operates for each shooting mode, making it easier to emphasize the subject's face when taking pictures.

SCN Modes	Portrait	For capturing portraits. Reproduces a healthy and bright skin tone.
	Half-length Portrait	For portraits with proper framing by automatic zoom. The number of recorded pixels is fixed to 3M (2048×1536).
	Baby	For images of babies. Captures bright images of a baby's expressions.

1 In mode, set the mode dial to SCN and press the four-way controller (▼).

The Capture Mode Palette appears.

2 Use the four-way controller (▲▼◀▶) to select , or .

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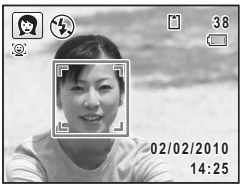
3 Press the OK button.

The shooting mode is selected and the camera returns to capture status.
When the camera detects a person's face, the Face Detection function is activated and the face detection frame appears. (p.70)
If the camera detects a person's face in mode, an orange frame appears showing the area to be zoomed in.



4 Press the shutter release button halfway.

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.
If the camera detects a person's face in mode, the camera automatically zooms in to enlarge the area in the orange frame shown in Step 3.
To use the flash, press the ⚡ button to pop up the flash. (p.114)

5 Press the shutter release button fully.

The picture is taken.

Taking Pictures of Children (Kids Mode)

The (Kids) mode is suitable for taking pictures of moving children. It also reproduces healthy and bright skin tone. The Face Detection function (p.70) operates automatically for this mode, making it easier to emphasize the subject's face when taking pictures.

1 In mode, set the mode dial to SCN and press the four-way controller (▼).

The Capture Mode Palette appears.

2 Use the four-way controller (▲▼◀▶) to select .

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3 Press the OK button.

The mode is selected and the camera returns to capture status.
When the camera detects a person's face, the Face Detection function is activated and the face detection frame appears. (p.70)

4 Press the shutter release button halfway.

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.
To use the flash, press the button to pop up the flash. (p.114)

5 Press the shutter release button fully.

The picture is taken.

Taking Pictures of Your Pet (Pet Mode)

Use the (Pet) mode to keep your moving pet in focus and capture the color of your pet's coat when you take a picture. Choose the appropriate icon depending on what color your pet is (closer to black or white or in between).

1 In mode, set the mode dial to SCN and press the four-way controller (▼).

The Capture Mode Palette appears.

2 Use the four-way controller (▲▼◀▶) to select .

3 Press the OK button.

The mode selection screen appears.

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4 **Use the four-way controller (▲▼) to select , , , , or .**

There are two types of icons: a cat and dog icon. Choosing either the cat or dog icon does not affect the resulting picture. Choose whichever you prefer. Choose an icon (white, gray, or black) whose tone best matches your pet's coat or fur.

5 **Press the OK button.**

The pet mode is selected and the camera returns to capture status.
When the camera detects a person's face, the Face Detection function is activated and the face detection frame appears. (p.70)

6 **Press the shutter release button halfway.**

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.
The focus frame follows the subject while the shutter release button is pressed halfway.
To use the flash, press the ⚡ button to pop up the flash. (p.114)

7 **Press the shutter release button fully.**

The picture is taken.

Taking Backlit Pictures (Backlight Mode)

In (Backlight) mode, the flash can be used to illuminate the subject when shooting against the light.

1 **Press the ⚡ button to pop up the flash.**

See p.114.

2 **In 📷 mode, set the mode dial to SCN and press the four-way controller (▼).**

The Capture Mode Palette appears.

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3 Use the four-way controller (▲▼◀▶) to select .

4 Press the OK button.

The mode is selected and the camera returns to capture status. When the camera detects a person's face, the Face Detection function is activated and the face detection frame appears. (p.70)

5 Press the shutter release button halfway.

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.

6 Press the shutter release button fully.

The picture is taken.

memo If mode is selected with the flash housed, the message [Please pop-up the flash] appears.

Taking Pictures of Sports and Leisure Activities (Sport/Surf & Snow Mode)

Picture Mode	Sport	For a fast moving subject. Tracks the subject until the picture is taken.
SCN Mode	Surf & Snow	For bright images such as sand or snow. Accurately meters for bright scenes.

1 In mode, set the mode dial to or SCN.

If you set the mode dial to , proceed to Step 5.

2 Press the four-way controller (▼).

The Capture Mode Palette appears.

3 Use the four-way controller (▲▼◀▶) to select .

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4 **Press the OK button.**

The mode is selected and the camera returns to capture status. When the camera detects a person's face, the Face Detection function is activated and the face detection frame appears. (p.70)

5 **Press the shutter release button halfway.**

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.

When the mode is selected, the focus frame follows the subject while the shutter release button is pressed halfway.

To use the flash, press the button to pop up the flash. (p.114)

6 **Press the shutter release button fully.**

The picture is taken.

Taking Pictures Indoors (Party Mode)

The (Party) mode is perfect for taking pictures indoors, such as snapshots at parties.

1 **In mode, set the mode dial to SCN and press the four-way controller (▼).**

The Capture Mode Palette appears.

2 **Use the four-way controller (▲▼◀▶) to select .**

3 **Press the OK button.**

The mode is selected and the camera returns to capture status. When the camera detects a person's face, the Face Detection function is activated and the face detection frame appears. (p.70)

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4 **Press the shutter release button halfway.**

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.
To use the flash, press the ⚡ button to pop up the flash. (p.114)

5 **Press the shutter release button fully.**

The picture is taken.

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Framing Your Pictures (Frame Composite Mode)

In ⧉ (Frame Composite) mode, you can take pictures using the frames stored in the camera.

1 **In 📷 mode, set the mode dial to SCN and press the four-way controller (▼).**

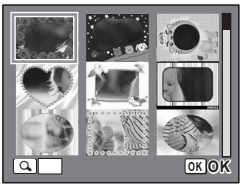
The Capture Mode Palette appears.

2 **Use the four-way controller (▲▼◀▶) to select ⧉.**

3 **Press the OK button.**

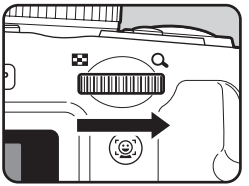
The 9-frame display of the frame selection screen appears.

4 **Use the four-way controller (▲▼◀▶) to choose the frame you want to use.**



5 **Turn the e-dial to the right (🔍).**

The selected frame appears in single-image display.
You can choose another frame using either of the following operations.



Four-way controller (◀▶)	Lets you choose a different frame.
e-dial to the left (⊠)	Returns to the 9-frame display of the frame selection screen, and then lets you choose a different frame in the same way as Step 4.

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6 Press the OK button.

The framed image appears on the display. When the camera detects a person's face, the Face Detection function is activated and the face detection frame appears. (p.70)

7 Press the shutter release button halfway.

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance. To use the flash, press the ⚡ button to pop up the flash. (p.114)

8 Press the shutter release button fully.

The picture is taken.

memo

- The number of recorded pixels is fixed at 3M (2048×1536).
- At shipment, the camera includes 3 default frames and 87 optional frames built-in. (The CD-ROM supplied with the camera contains a total of 90 frames, including the default frames.)
- In ⊙ mode, you cannot display "Grid Display" by pressing the **DISP** button.

Optional Frames

The optional frames are stored in the built-in memory in the X90. These optional frames are deleted if the files on the built-in memory are deleted with a computer or the built-in memory is formatted. To reload the optional frames into the built-in memory, copy the files from the CD-ROM (S-SW104) supplied with the camera (p.187).

Adding a Frame to a captured image ☞p.185

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Using the Self-timer

In Self-timer mode, the picture is taken ten seconds or two seconds after the shutter release button is pressed.
Stabilize the camera with a tripod or other support when taking a picture using the self-timer.

Self-timer	The picture is taken approximately ten seconds after the shutter release button is pressed. Use this mode when you want to be included in a group picture.
2 sec. Self-timer	The picture is taken approximately two seconds after the shutter release button is pressed. Use this mode to avoid camera shake.

1 Press the four-way controller (▲) in mode.

The [Drive Mode] screen appears.

2 Use the four-way controller (◀▶) to select or and press the OK button.

The camera is ready to take the picture using the self-timer.
When the camera detects a person's face, the Face Detection function is activated and the face detection frame appears. (p.70)

3 Press the shutter release button halfway.

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.
To use the flash, press the ϟ button to pop up the flash. (p.114)

4 Press the shutter release button fully.

When is selected, the self-timer lamp lights. Three seconds before the picture is taken, and when is selected, the self-timer lamp blinks. The picture is taken ten seconds or two seconds later.

Caution

- Focusing may be compromised if you move the camera while the self-timer lamp is blinking when taking still pictures.
- The self-timer lamp does not light or blink in (Pet) mode.

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- In 🎥 (Movie) mode, recording will start after ten seconds (or two seconds).
- Press the shutter release button halfway while the self-timer is engaged to stop the countdown and press fully to restart the countdown.

Taking a Series of Pictures (Continuous Shooting/Burst Shooting Mode)

In these modes, pictures are taken continuously as long as the shutter release button is pressed.

Continuous Shooting	Each time a picture is taken, the image is saved in the memory before the next image is taken. The higher the image quality, the longer the interval between shots. You can continue shooting until the memory of the SD Memory Card or the built-in memory is full.
Burst Shooting(L)	The number of recorded pixels is fixed to 5M (2592×1944) and pictures are taken continuously. The interval between shots becomes shorter in the following sequence: L, M, and H.
Burst Shooting(M)	
Burst Shooting(H)	

The number of pictures that can be taken continuously and the interval between shots vary depending on the shooting conditions.

1 Press the four-way controller (▲) in 📷 mode.

The [Drive Mode] screen appears.

2 Use the four-way controller (◄►) to select L, L, M or H and press the OK button.

The camera is ready to take a series of pictures.

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3 Press the shutter release button halfway.

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.

4 Press the shutter release button fully.

Pictures are taken continuously as long as you keep the shutter release button pressed.

Caution

- The flash does not discharge in Continuous Shooting mode.
- Continuous shooting cannot be selected in ● (Green), (Fireworks), (Frame Composite), WIDE (Digital Wide), (Digital Panorama) or (Movie) mode.
- Digital Zoom and Intelligent Zoom are not available in , and modes.

memo

- The focus, exposure and white balance are locked with the first shot.
- When the Face Detection function (p.70) is activated, it works only when taking the first shot.
- The Blink Detection function works only for the last shot.
- In AUTO PICT (Auto Picture) mode, pictures are taken continuously in the shooting mode first selected.

Taking Pictures at a Set Interval (Interval Shoot)

In (Interval Shoot) mode, pictures can be taken automatically at a certain interval from a set time. Specify the following settings.

Interval	Set the camera to take pictures in intervals from 10 seconds to 99 minutes. You can set the camera to take pictures in one second increments from ten seconds to four minutes intervals or in one minute increments from four minutes to 99 minutes intervals.
Number of Shots	Set the number of shots to be taken. You can take from two pictures to the number of recordable images. However, 1000 shots is the maximum.
Start Delay	Set the start delay from 0 minutes to 24 hours. The start delay can be set in increments of 1 minute for a delay time up to 59 minutes, and increments of 1 hour for a delay time of one hour or more. When set to 0 min., the first picture is taken as soon as the shutter release button is pressed.

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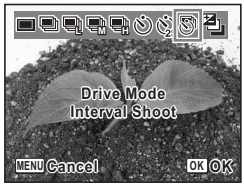
1 **Press the four-way controller (▲) in 📷 mode.**

The [Drive Mode] screen appears.

2 **Use the four-way controller (◀▶) to select 🖳 and press the OK button.**

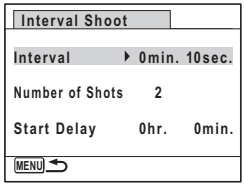
The current settings for interval shooting appear for approximately 1 minute. To take pictures with the current settings, proceed to Step 7.



3 **Press the OK button.**

The [Interval Shoot] screen appears.

4 **Use the four-way controller (▲▼) to select [Interval], [Number of Shots] or [Start Delay].**



5 **Press the four-way controller (▶), then use the four-way controller (▲▼) to change the settings.**

To change another setting, press the four-way controller (▶).

6 **When finished, press the MENU button.**

The screen shown in Step 3 reappears.

The camera returns to capture status after approximately one minute.

7 **Press the shutter release button halfway.**

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.

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8 Press the shutter release button fully.

After the message [Starts interval shooting] appears, the display turns off. When [Start Delay] is set to [0 min.], the display turns off after the first image taken appears in Instant Review.
When the number of images set in [Number of Shots] is taken, the message [Interval shooting complete] appears and the camera turns off.

Caution Interval shooting is not available in ● (Green), ▭ (Frame Composite), WIDE (Digital Wide), ▮▮▮ (Digital Panorama) or 🎥 (Movie) mode.

memo
- The display turns off between shots (during standby).
- Press the power switch during standby to display the remaining number of shots and interval on the display. When the **MENU** button is pressed, the message [Stop interval shooting?] appears. To cancel interval shooting, press the **OK** button.
- If the shooting interval is short, cancel operation may not succeed. In this case, turn the mode dial to terminate the process.
- Settings for interval shooting can also be made in [Interval Shoot] in the [📷 Rec. Mode] menu. Perform the same operations described in Steps 4 to 6 to make the settings.

Taking Pictures with Automatic Exposure Adjustment (Exposure Bracket)

You can take three consecutive pictures at different exposure levels when the shutter release button is pressed.
The shooting order is as follows: correct exposure → negative compensation → positive compensation.

Correct exposure

Negative compensation

Positive compensation

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1 **Press the four-way controller (▲) in 📷 mode.**

The [Drive Mode] screen appears.

2 **Use the four-way controller (◀▶) to select 🎞.**

The camera is ready to take pictures with Auto Bracket.

3 **Use the four-way controller (▲▼) to select the bracketing range and press the OK button.**

You can set the adjustment from ±0.3EV to ±2.0EV.

4 **Press the shutter release button halfway.**

The focus frame on the display turns green when the subject is in focus.

5 **Press the shutter release button fully.**

Press the shutter release button once to automatically adjust the exposure and take the three pictures at different exposures.

Caution Auto Bracket is not available in ● (Green), ✺ (Fireworks), WIDE (Digital Wide), ▮▮◧ (Digital Panorama) or 🎥 (Movie) mode.

memo When [Instant Review] is set to ☑ (On) (p.133), the third picture taken is shown in Instant Review after shooting (p.70).

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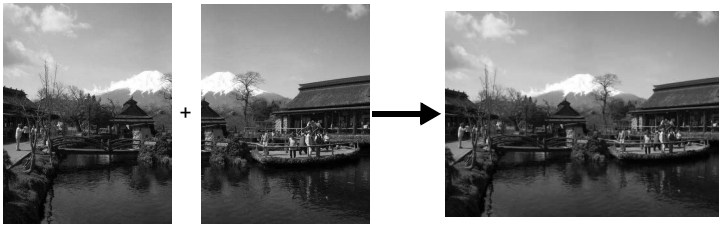
Using the Digital Wide Function (Digital Wide Mode)

In WIDE (Digital Wide) mode, you can stitch two vertical images captured with this camera into a single frame up to approx. 20 mm coverage (35 mm film equivalent).



1 **In 📷 mode, set the mode dial to SCN and press the four-way controller (▼).**

The Capture Mode Palette appears.

2 **Use the four-way controller (▲▼◀▶) to select WIDE.**

3 **Press the OK button.**

The camera enters WIDE mode.
Hold the camera vertically so that the shutter release button is on the bottom, and compose the first image (left half of picture). When the camera detects a person's face, the Face Detection function is activated and the face detection frame appears. (p.70)

4 **Press the shutter release button halfway.**

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.

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5 Press the shutter release button fully.

The first captured image is temporarily saved, and the shooting screen for the second image is displayed.

6 Take the second image.

Overlap the image on the preview guide on the left of the screen to compose the second image (right half of picture). Repeat Steps 4 and 5 to take the second image.
The stitched first and second image appears on the display (Instant Review) for one second, and then is saved.

memo

- To minimize distortion when taking the second image, turn the camera so that it pivots around the right edge of the preview guide on the screen.
- Some distortion may result from moving objects, repeating patterns, or if nothing exists when overlapping the first and second image on the preview guide.
- When the Face Detection function (p.70) is activated, it works only when taking the first shot.
- The composite image is saved with the pixel size of 5M (2592×1944).

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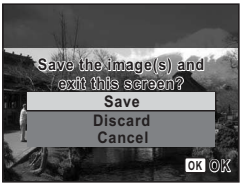
To Cancel after Taking the First Shot

1 **When the shooting screen for the second image is displayed in Step 5 on p.99, press the OK button or the four-way controller (▼).**

A confirmation dialog appears.

2 **Use the four-way controller (▲▼) to select an option and press the OK button.**



Save	Saves the first image and you can retake the first shot. The first image is saved in 3M (2048×1536).
Discard	Discards the first image and you can retake the first shot.
Cancel	Returns to the shooting screen for the second image.

Taking Panoramic Pictures (Digital Panorama Mode)

In ▮■◀ (Digital Panorama) mode, you can stitch together two or three captured frames to create a panoramic photograph with the camera.

1 **In 📷 mode, set the mode dial to SCN and press the four-way controller (▼).**

The Capture Mode Palette appears.

2 **Use the four-way controller (▲▼◀▶) to select ▮■◀.**

3 **Press the OK button.**

The camera enters the ▮■◀ mode and the message [Set shift direction] is displayed.

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4 Use the four-way controller (◄►) to choose the direction in which the images will be joined.

The screen for taking the first frame is displayed.

When the camera detects a person's face, the Face Detection function is activated and the face detection frame appears. (p.70)

5 Press the shutter release button halfway.

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.

6 Press the shutter release button fully.

The screen for taking the second frame is displayed after you take the first frame.

If you select right (►) in Step 4:

The right edge of the first frame appears in semi-transparent form on the left edge of the display.

If you select left (◄) in Step 4:

The left edge of the first frame appears in semi-transparent form on the right edge of the display.

7 Take the second frame.

Move the camera so that the semi-transparent image and the actual view overlap and press the shutter release button.

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8 Take the third frame.

Repeat Steps 5 to 7 to take the third frame.
The panorama images are joined and a stitched together image appears.
The stitched image does not appear when [Instant Review] (p.133) is □ (Off).

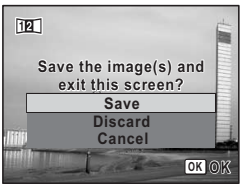
- Some distortion may result from moving objects, repeating patterns, or if nothing exists when overlapping the first and second frames or the second and third frames on the preview guide.
- When the Face Detection function (p.70) is activated, it works only when taking the first shot.

To Cancel after Taking the First or Second Frame

1 After shooting the first frame in Step 6 on p.101 or the second frame in Step 7, press the OK button or the four-way controller (▼).

A confirmation dialog appears.

2 Use the four-way controller (▲▼) to select an option and press the OK button.



Save	Saves the captured image(s) and you can retake the first frame. When this option is selected after shooting the second frame, the first and the second frames are stitched together and saved as a panoramic photograph.
Discard	Discards the captured image(s) and you can retake the first frame.
Cancel	Returns to the previous shooting screen.

Unstitched images captured in ▮▮◧ mode are saved with a pixel size of 2M (1600×1200).

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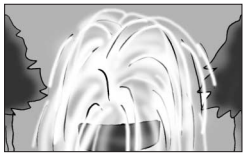
Effect of Aperture and Shutter Speed

Correct exposure of the subject is determined by the combination of shutter speed and aperture value. There are many correct combinations of shutter speed and aperture value for a particular subject. Different combinations produce different effects.

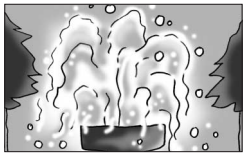
Effect of Shutter Speed

By changing the shutter speed, you can manipulate how time is expressed in the pictures you create. Unlike with your own naked eyes, in a picture you can capture a fraction of a moment or a whole period of time, creating different effects.
Use the **Tv** (Shutter Priority) mode.

● **Using slower shutter speed**
If the subject is moving, the image will be blurred because the shutter is open longer. It is possible to enhance the effect of motion (rivers, waterfalls, waves, etc.) by intentionally using a slower shutter speed.



● **Using faster shutter speed**
Choosing a faster shutter speed will allow freezing the action of a moving subject. A faster shutter speed also helps to prevent camera shake.



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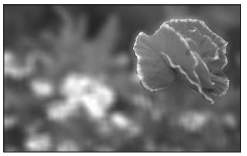
Effect of Aperture

By changing the aperture, you can control the depth of the area that appears in focus in the picture (the depth of field). By either narrowing the focus to emphasize a single point or giving depth to your picture instead you can completely change the feel of the picture you create. Use the **Av** (Aperture Priority) mode.

- **Opening the aperture (reduce the aperture value)**



Objects closer and farther than the focused subject will be more out of focus. For instance, if you take a picture of a flower against a landscape with the aperture open, the landscape in front and behind the flower will be blurred, emphasizing only the flower.

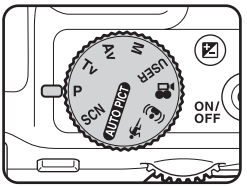
- **Closing the aperture (increase the aperture value)**

The range in focus expands forward and backward. For instance, if you take a picture of a flower against a landscape with the aperture narrowed, the landscape in front and behind the flower will be in focus.

To Use the P (Program) Mode

This mode automatically sets the shutter speed and aperture value to the proper exposure according to Program Line. Use the e-dial to change the shutter speed and aperture value while maintaining the proper exposure.

1 Set the mode dial to P.



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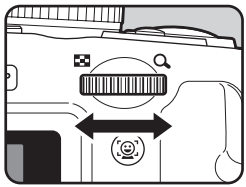
2 Turn the e-dial to adjust the shutter speed and aperture value while maintaining the proper exposure.



Shutter speed
Aperture value

Rotation Direction of e-dial	Effect
(Right)	Slows the shutter speed and increases the aperture value (closes down the aperture) in increments of 1/3EV.
(Left)	Speeds up the shutter speed and decreases the aperture value (opens up the aperture) in increments of 1/3EV.

3 To use the flash, press the ϟ button.

The flash pops up. (p.114)

4 Take the picture.

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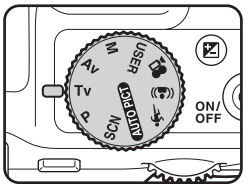
To Use the Tv (Shutter Priority) Mode

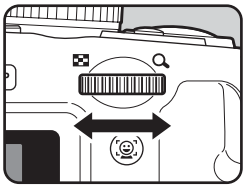
This lets you set the desired shutter speed for expressing moving subjects. You can take pictures of fast moving subjects that look still or subjects that give a sense of movement.

1 Set the mode dial to Tv.



2 Turn the e-dial to change the shutter speed.

The shutter speed can be set within the range of 1/4000 to 4 seconds.



3 To use the flash, press the ⚡ button.

The flash pops up. (p.114)

4 Take the picture.

Caution Flash modes ⚡A (Auto), ⚡ (Flash On), 👁A (Auto + Red-eye) and 👁⚡ (Flash On + Red-eye) are not available.

memo
- Aperture value and sensitivity (when set to [AUTO]) are automatically set to provide the proper exposure according to the shutter speed. If the proper exposure value cannot be achieved, the closest value is set and the aperture value is displayed in red.
- The shutter speed set in **Tv** mode is shared with **M** mode. Changing the value in one mode automatically changes the value in the other mode.
- When the shutter speed is set to a speed slower than 1/4 seconds, a process to reduce image roughness and unevenness (noise reduction) is performed.
- The shutter speed is always saved. Performing a reset returns the value to the default setting. The default setting is 1/125 seconds.

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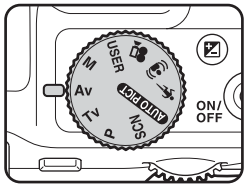
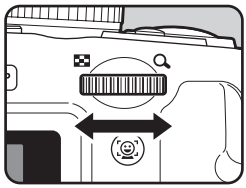
To Use the Av (Aperture Priority) Mode

Lets you set the desired aperture value for controlling the depth of field. The depth of field is deeper and the front and back of the focused object is clear when aperture is set to a large value. The depth of field is shallower and the front and back of the focused object is blurred when aperture is set to a small value.
Shutter speed is automatically set to appropriate exposure depending on the aperture value.

1 Set the mode dial to Av.



2 Turn the e-dial to change the aperture value.



3 To use the flash, press the ⚡ button.

The flash pops up. (p.114)

4 Take the picture.

Caution Flash modes ⚡A (Auto) and 👁A (Auto + Red-eye) are not available.

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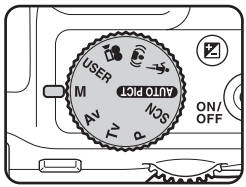
- Shutter speed and sensitivity (when set to [AUTO]) are automatically set to provide the proper exposure according to the aperture value. If the proper exposure value cannot be achieved, the closest value is set and the shutter speed is displayed in red.
- The aperture value set in **Av** mode is shared with **M** mode. Changing the value in one mode automatically changes the value in the other mode.
- When the shutter speed is set to a speed slower than 1/4 seconds, a process to reduce image roughness and unevenness (noise reduction) is performed.
- Even when the zoom ratio is changed, the aperture value is maintained. However, when the current aperture value cannot be used with the selected zoom ratio, the closest aperture value is set. In this case, if you change the zoom ratio again and the original aperture value can be used, the setting returns to the original aperture value.

To Use M (Manual Exposure) Mode

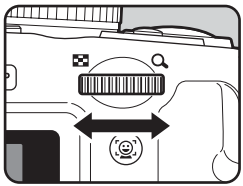
You can set the shutter speed and aperture value. This mode is suitable to take pictures of your choice by combining them. This mode is convenient for taking pictures using the metered combination of the shutter speed and aperture value or taking intentionally underexposed (darker) or overexposed (brighter) photographs.

1 Set the mode dial to M.



2 Turn the e-dial to change the shutter speed/aperture value.

Use the ⊠ button to switch between the shutter speed and aperture value. (The default setting is shutter speed.)



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3 To use the flash, press the ⚡ button.

The flash pops up. (p.114)

4 Take the picture.

Caution

- In **M** mode, EV compensation is unavailable.
- [AUTO] cannot be selected for sensitivity.
- Flash modes ⚡A (Auto), ⚡ (Flash On), 👁A (Auto + Red-eye) and 👁⚡ (Flash On + Red-eye) are not available.

memo

- A warning appears if there is a large difference between the current exposure and the proper exposure. If the difference is greater than ±2.0EV, only the exposure warning icon is displayed. If the difference is ±2.0EV or less, the exposure warning icon is displayed and the difference between the current exposure and the proper exposure is shown in increments of 1/3EV.
- The shutter speed and aperture value set in **M** mode are shared with **Tv** and **Av** modes. Changing the values in one mode automatically changes the values in the other modes.
- When the shutter speed is set to a speed slower than 1/4 seconds, a process to reduce image roughness and unevenness (noise reduction) is performed.
- When the shutter speed or aperture value is changed, the new value is displayed in a larger font size (height of 1.5×).
- Even when the zoom ratio is changed, the aperture value is maintained. However, when the current aperture value cannot be used with the selected zoom ratio, the closest aperture value is set. In this case, if you change the zoom ratio again and the original aperture value can be used, the setting returns to the original aperture value.

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Using USER (USER) Mode

To Save the Settings in USER Mode

By saving the current camera settings, you can easily retrieve them by setting the mode dial to **USER**.
The following settings can be saved:

- Shooting modes **P** (default setting)/**Tv**/**Av**/**M**
- [📷 Rec. Mode] menu settings
- Flash Mode
- Drive Mode
- Focus Mode
- EV Compensation
- **DISP** button information display
- Face Detection function setting

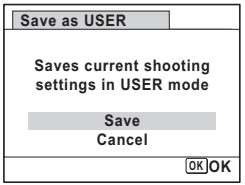
1 **Set the functions to be saved.**

2 **Press the MENU button in ▶ mode.**
The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

3 **Use the four-way controller (▲▼) to select [Save as USER].**

4 **Press the four-way controller (▶).**
The [Save as USER] screen appears.

5 **Press the four-way controller (▲) to select [Save].**



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6 Press the OK button.

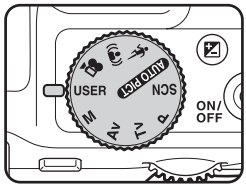
The save process starts.
When the save process is completed, the camera returns to 📷 mode or ▶ mode.

Caution: You can save settings in **USER** mode only when the mode dial is set to **P**, **Tv**, **Av** or **M**.

To Take Pictures in USER Mode

1 Set the mode dial to USER.

The saved settings are retrieved.



2 Change the settings already saved in USER mode as necessary.

3 To use the flash, press the ⚡ button.

The flash pops up. (p.114)

4 Take the picture.

Caution: The settings changed in **USER** mode are only valid when the mode dial is set to **USER** mode. Changing the capture mode or turning off the power returns the camera to the settings saved with [Save as **USER**]. To change the settings saved in **USER** mode, perform the operations to save the settings in **USER** mode again.

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Selecting the Flash Mode

Auto	The flash discharges automatically depending on the light conditions. If the Face Detection function is activated, the flash mode is automatically set to .
Flash Off	The flash does not discharge, regardless of the brightness. Use this mode to take pictures where flash photography is prohibited.
Flash On	The flash discharges regardless of the brightness.
Auto + Red-eye	This mode reduces the phenomenon of red eyes caused by the light from the flash being reflected in the subject's eyes. The flash discharges automatically. (A pre-flash discharges before the main flash.)
Flash On + Red-eye	This mode reduces the phenomenon of red eyes caused by the light from the flash being reflected in the subject's eyes. The flash discharges regardless of the light conditions. (A pre-flash discharges before the main flash.)
Slow-speed Sync	For taking bright pictures of both people and background indoors and outdoors at night. The flash discharges automatically.
Slow-speed Sync+Red-eye	Discharges a pre-flash to reduce the phenomenon of red eyes before discharging the flash with Slow-speed Sync.

memo

- The flash mode is fixed at in the following situations:
  - when (Stage Lighting), (Fireworks) or (Movie) is selected as the capture mode
  - when (Continuous Shooting), (Burst Shooting(L)), (Burst Shooting(M)), (Burst Shooting(H)) or (Auto Bracket) is selected as the drive mode
  - when (Infinity) is selected as the focus mode
- In (Green) mode, you can only select or .
- In (Night Scene) mode, **Tv** (Shutter Priority) or **M** (Manual Exposure) mode, you cannot select , , or .
- In **Av** (Aperture Priority) mode, you cannot select or .

Caution

Using the flash when capturing images at a close distance may cause irregularities in the image due to the light distribution. When using the flash at an extremely close distance, a shadow of the lens may appear in the picture taken.

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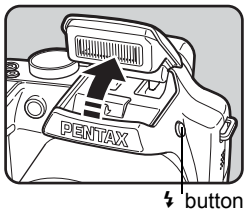
1 Press the ϟ button.

The flash pops up and begins charging.



ϟ button

2 Press the four-way controller (◄) in 📷 mode.

The [Flash Mode] screen appears.

3 Use the four-way controller (◄►) to select a flash mode.

4 Press the OK button.

The setting is saved and the camera returns to capture status.

About the red-eye phenomenon

Taking pictures using the flash may cause the subject's eyes to appear red in the resulting picture. This phenomenon occurs when the light from the flash is reflected in the subject's eyes. It can be reduced by illuminating the area around the subject or moving closer to the subject and zooming out to a wider angle. Setting the flash mode to 👁A, 👁ϟ or SLOW 👁 is also an effective way of reducing red eyes.

If the subject's eyes appear red despite such precautions, they can be corrected by the red-eye compensation function (p.184).

Saving the Flash Mode setting ☞p.144

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To Use the Flash

1 **Select a capture mode.**

2 **Press the ⚡ button.**

The flash pops up and begins charging.
⚡ (Red) blinks on the display while charging.
When the flash is fully charged, ⚡ appears on the display. (Not displayed in ⚡_{A} mode)

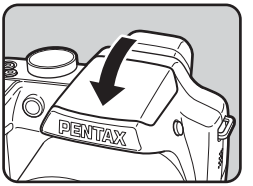
3 **Press the shutter release button halfway.**

The focus frame (or face detection frame) on the display turns green when the camera focuses on the subject at the correct distance.

4 **Press the shutter release button fully.**

The flash discharges and the picture is taken.

5 **Push the flash down to retract.**



Selecting the Focus Mode

AF Standard	Use this mode when the distance to the subject is 40 cm (16 in.) or more. The camera is focused on the subject in the autofocus area when the shutter release button is pressed halfway.
Macro	This mode is used when the distance to the subject is approx. 10 cm to 50 cm (4 in. to 20 in.). The camera is focused on the subject in the autofocus area when the shutter release button is pressed halfway.
1cm Macro	This mode is used for taking pictures of the subject from a distance of 1 cm to 30 cm. (0.4 in. to 12 in.)
Infinity	This mode is used for taking distant objects. The flash is set to ⚡ (Flash Off).
MF Manual Focus	This mode lets you adjust the focus manually.
AF Area Selection	Select an area of the subject to focus on.

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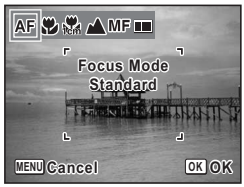
1 Press the four-way controller (▶) in 📷 mode.

The [Focus Mode] screen appears.
The focus mode changes each time the four-way controller is pressed. You can also change the setting using the four-way controller (◀).



2 Press the OK button.

The setting is saved and the camera returns to capture status.

memo

- In 🟢 (Green) mode, you can only select **AF** or 🌷.
- The focus mode is fixed at 🏔 in 🎆 (Fireworks) mode.
- When [Auto Macro] (p.118) is set to ☑ (On) and shooting with 🌷 selected, if the subject is further than 50 cm away, the camera automatically focuses to ∞ (Infinity). By pressing the shutter release button fully, you can also take a picture even when the focus is not set.

Saving the Focus Mode setting ☞p.144

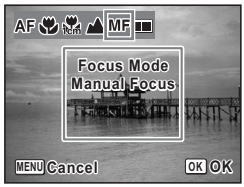
To Set the Focus Manually (Manual Focus)

1 Press the four-way controller (▶) in 📷 mode.

2 Press the four-way controller (▶) to select MF.

3 Press the OK button.

The central portion of the image is magnified to full screen on the display.



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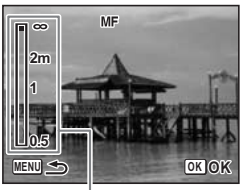
4 Use the four-way controller (▲▼) to adjust the focus.

The **MF** indicator appears on the display to indicate the approximate distance to the subject. Adjust the focus using the indicator as a guide.

- ▲ for distant focus
- ▼ for closer focus



MF indicator

5 Press the OK button.

The focus is fixed and the camera returns to capture status.
After the focus is fixed, you can press the four-way controller (▶) again to display the **MF** indicator and readjust the focus.

Caution The shooting mode and drive mode cannot be changed while the **MF** indicator is displayed.

memo
- To focus at 1 cm in **MF** mode, turn the zoom lever and set the zoom position to the 1 cm indicator on the zoom bar.
- To switch from **MF** to another focus mode, press the four-way controller (▶) while the **MF** indicator is displayed.

To Select an Area to Focus On (AF Area Selection)

You can select an area to focus on from 25 points.

1 Press the four-way controller (▶) in 📷 mode.

2 Press the four-way controller (▶) to select ▦.

3 Press the OK button.

The [AF Area Selection] screen appears with the central portion selected.

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4 **Use the four-way controller (▲▼◀▶) to select the position you want to focus on.**

5 **Press the OK button.**

The focusing area is fixed and the camera returns to capture status.

Selecting the Autofocus Settings

You can set the autofocus area and focusing method.

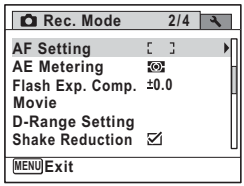
1 **Press the MENU button in 📷 mode.**

The [📷 Rec. Mode] menu appears.

2 **Use the four-way controller (▲▼) to select [AF Setting].**

3 **Press the four-way controller (▶).**

The [AF Setting] screen appears.



To Change the Focusing Area (AF Area)

When **AF** (Standard), (Macro) or (1cm Macro) is selected as the focus mode, you can change the autofocus area (Focusing Area).

Multiple	The camera measures a wide area in the center of the monitor (within the focusing area) and focuses on the nearest subject.
Spot	The camera measures a narrow area in the center of the monitor (the spot focusing area) making easier for you to focus on a specific subject.
Automatic Tracking AF	The camera continues to focus on the moving subject while you are pressing the shutter release button halfway.

4 **Press the four-way controller (▶).**

A pull-down menu appears.

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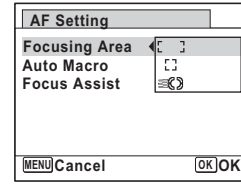
5 Use the four-way controller (▲▼) to change the AF area setting.



6 Press the OK button.

The setting is saved.

7 Press the MENU button twice.

The camera returns to capture status.

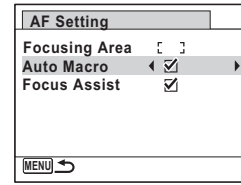
memo

- In ▣ (Frame Composite) and 🎥 (Movie) modes, the focusing area cannot be set to ⌯.
- In AUTO PICT (Auto Picture), ● (Green) and ✺ (Fireworks) modes, the focusing area is fixed at [ ].

To Set the Auto Macro

This sets the focus in the macro range when the distance to the subject is 50 cm or closer.

4 Use the four-way controller (▲▼) to select [Auto Macro].



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5 Use the four-way controller (◄►) to select ☑ or □.

☑	When the focus mode is set to **AF** or ▦, the focus is adjusted to the macro range as necessary. When the focus mode is set to 1cm, the focus is only adjusted in the 1-cm macro range (1 cm to 30 cm). (Default setting) When the Auto Macro function is activated during shooting, 1cm appears on the display. (p.21)
□	The focus is only adjusted in the respective focus range.

The setting is saved.

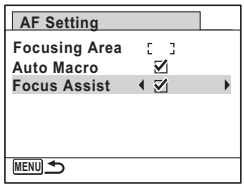
6 Press the MENU button twice.

The camera returns to capture status.

To Set the Focus Assist Light

The focus assist light aids in focusing on dark subjects. This helps you to focus on the subject in low light conditions where auto focus does not work properly. The focus assist light is emitted from the self-timer lamp part.

4 Use the four-way controller (▲▼) to select [Focus Assist].



5 Use the four-way controller (◄►) to select ☑ or □.

☑	Focus assist light is emitted as necessary. (Default setting)
□	Focus assist light is not emitted.

The setting is saved.

6 Press the MENU button twice.

The camera returns to capture status.

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Caution

- Looking at the light directly does not pose a safety hazard. However, do not look directly into the emitter from a very short distance.
- The camera does not emit the focus assist light under the following conditions:
  - when the capture mode is set to 🎥 (Movie)
  - when ▲ (Infinity) or **MF** is selected as the focus mode

Setting the Image Tone

Set the image tone of still pictures.
You can select from [Bright] (Default setting), [Natural] or [Monochrome].

1 Press the MENU button in 📷 mode.

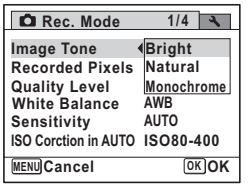
The [📷 Rec. Mode] menu appears.

2 Use the four-way controller (▲▼) to select [Image Tone].

3 Press the four-way controller (▶).

A pull-down menu appears.

4 Use the four-way controller (▲▼) to select a finishing tone.



5 Press the OK button.

The setting is saved.

6 Press the MENU button.

The camera returns to capture status.

memo

When [Monochrome] is selected, [Tone Adjustment] appears on the [📷 Rec. Mode] menu for setting the tone of monochrome images instead of [Saturation].

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Selecting the Recorded Pixels

You can choose from nine recorded pixels settings for still pictures. The larger the number of recorded pixels, the clearer the details will appear when you print your picture. As the quality of the printed picture also depends on the image quality, exposure control, resolution of the printer, and other factors, you do not need to select more than the required number of recorded pixels. 3M is adequate for making postcard-size prints. The more pixels there are, the larger the picture and the bigger the file size.
Refer to the following table for the appropriate settings according to use. (Default setting : 12M)

Recorded Pixels		Use
12M	4000×3000	For printing high quality photos or A4-size pictures or larger, or editing images on a computer
10.7M 3:2	4000×2672	
9M 16:9	4000×2256	For a natural feeling of expansiveness with the same aspect ratio as HDTV
9M 1:1	2992×2992	
7M	3072×2304	
5M	2592×1944	
3M	2048×1536	For making postcard-size prints
1024	1024× 768	
640	640× 480	For posting on a website or attaching to e-mail

Clearer

memo

If you select 9M 16:9, the aspect ratio of the image is 16:9 and the monitor display for recording and playback is as shown on the right.

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1 **Press the MENU button in 📷 mode.**

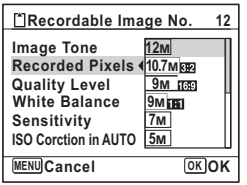
The [📷 Rec. Mode] menu appears.

2 **Use the four-way controller (▲▼) to select [Recorded Pixels].**

3 **Press the four-way controller (▶).**

A pull-down menu appears.

4 **Use the four-way controller (▲▼) to change the number of recorded pixels.**



5 **Press the OK button.**

The setting is saved.

6 **Press the MENU button.**

The camera returns to capture status.

memo

- The number of recorded pixels for images captured in ● (Green) mode is fixed at 12M.
- The number of recorded pixels for images captured in 👤 (Half-length Portrait) or ⬭ (Frame Composite) is fixed at 3M.
- The number of recorded pixels for images captured in (Digital SR) or WIDE (Digital Wide) mode is fixed at 5M. (The number of recorded pixels is 3M if you exit WIDE mode without taking the second image.)

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Selecting the Quality Level of Still Pictures

Sets the quality for still images according to how the images will be used. The more stars (★), the higher the quality of the image, but the file size becomes larger. The selected recorded pixels also affects the size of the image file (p.121).

★★★ Best	Lowest compression ratio. Suitable for photo prints.
★★ Better	Standard compression ratio. Suitable for viewing on a computer screen. (Default setting)
★ Good	Highest compression ratio. Suitable for attaching to e-mails or posting on websites.

1 **Press the MENU button in 📷 mode.**

The [📷 Rec. Mode] menu appears.

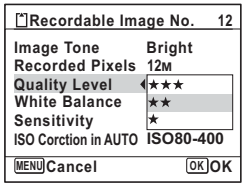
2 **Use the four-way controller (▲▼) to select [Quality Level].**

3 **Press the four-way controller (▶).**

A pull-down menu appears.

4 **Use the four-way controller (▲▼) to choose the quality level.**

The maximum number of pictures you can take is displayed at the top of the screen when you select a quality level.



5 **Press the OK button.**

The setting is saved.

6 **Press the MENU button.**

The camera is ready to take a picture.

memo In ● (Green) mode, the quality level is fixed at ★★.

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Setting the White Balance

You can take pictures in natural colors by adjusting the white balance according to the light conditions at the time of shooting.

AWB	Auto	The camera adjusts the white balance automatically. (Default setting)
☼	Daylight	For use when taking pictures in sunlight
	Shade	For use when taking pictures in the shade
	Tungsten Light	For use when taking pictures under light bulb or other tungsten light
D	Daylight Colors Fluorescent	For use when taking pictures under fluorescent light
N	Daylight White Fluorescent	
W	White Light Fluorescent	
	Manual	For use when adjusting the white balance manually

memo

- Set another white balance if you are not satisfied with the color balance of pictures taken with the white balance set to **AWB**.
- Depending on the selected shooting mode, the white balance setting may not be changed. Refer to "Functions Available for Each Shooting Mode" (p.238) for details.

1 Press the MENU button in 📷 mode.

The [📷 Rec. Mode] menu appears.

2 Use the four-way controller (▲▼) to select [White Balance].

3 Press the four-way controller (▶).

The [White Balance] screen appears.

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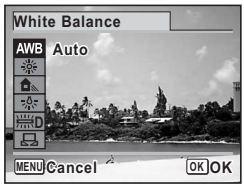
4 Use the four-way controller (▲▼) to change the setting.



You can check the result of selected white balance setting on the preview image each time you press the four-way controller (▲▼).
To select a type of fluorescent lighting, select an icon for the fluorescent light and press the four-way controller (►) and then use the four-way controller (▲▼) to select a type of lighting.

5 Press the OK button.

The setting is saved.

6 Press the MENU button.

The camera returns to capture status.
Refer to the section “Manual Setting” for instructions on adjusting the white balance manually.

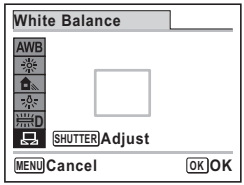
Saving the White Balance setting ☞p.144

Manual Setting

Have a blank sheet of white paper or similar material ready.

1 In the [White Balance] screen, use the four-way controller (▲▼) to select 🖵.

2 Point the camera at the blank sheet of paper or other material so that it fills the frame displayed in the center of the screen.



3 Press the shutter release button fully.

The white balance is automatically adjusted.

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4 **Press the OK button.**
The setting is saved and the [📷 Rec. Mode] menu reappears.

5 **Press the MENU button.**
The camera returns to capture status.

Setting the Sensitivity

You can select the sensitivity to suit the brightness of the surroundings.

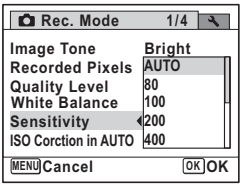
AUTO	The sensitivity is automatically adjusted by the camera.
80	The lower the sensitivity, the less noise that affects the image. The shutter speed will be slower in low light conditions.
100	
200	
400	
800	
1600	Higher sensitivity settings use faster shutter speeds in low light conditions to reduce camera shake, but the image may be affected by noise.
3200	
6400	

1 **Press the MENU button in 📷 mode.**
The [📷 Rec. Mode] menu appears.

2 **Use the four-way controller (▲▼) to select [Sensitivity].**

3 **Press the four-way controller (▶).**
A pull-down menu appears.

4 **Use the four-way controller (▲▼) to change the sensitivity.**



5 **Press the OK button.**
The setting is saved.

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6 Press the MENU button.

The camera returns to capture status.

- When the sensitivity is set to 3200 or 6400, the number of recorded pixels is fixed at 5M (2592×1944).
- When 10.7M (4000×2672), 9M (4000×2256) or 9M (2992×2992) is selected, you cannot select 3200 or 6400.
- When set to (Digital SR), (Green) or (Movie) mode and (Burst Shooting(L)), (Burst Shooting(M)) or (Burst Shooting(H)) is selected as the drive mode, only [AUTO] is available.
- When set to (Fireworks) mode, the sensitivity is fixed to the minimum value.
- In M (Manual Exposure) mode, you cannot select [AUTO].
- When [Highlight Correction] in [D-Range Setting] is set to (On), 160 is displayed as the sensitivity instead of 80 or 100.

Saving the Sensitivity setting ☞p.144

Setting the ISO Correction in AUTO

Set the sensitivity range when the sensitivity is set to AUTO.
You can select from 80-100, 80-200, 80-400, 80-800, and 80-1600.

1 Press the MENU button in mode.

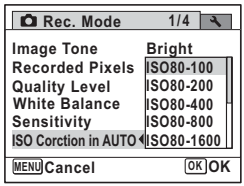
The [Rec. Mode] menu appears.

2 Use the four-way controller (▲▼) to select [ISO Corction in AUTO].

3 Press the four-way controller (▶).

A pull-down menu appears.

4 Use the four-way controller (▲▼) to select the sensitivity adjustment range.



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5 **Press the OK button.**
The setting is saved.

6 **Press the MENU button.**
The camera returns to capture status.

When [Highlight Correction] in [D-Range Setting] is set to ☑ (On), select from 160-200, 160-400, 160-800, and 160-1600.

Setting the AE Metering

You can set the area of the screen where the brightness is metered to determine the exposure.

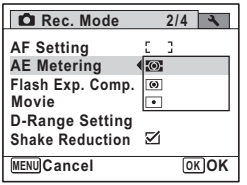
Multi-segment	The camera divides the image into 256 areas, meters the brightness and determines the exposure.
Center-weighted	The camera takes a reading of the overall brightness of the image with the center of the image having more influence on the exposure.
Spot	The camera determines the exposure by metering the brightness only at the center of the image.

1 **Press the MENU button in 📷 mode.**
The [📷 Rec. Mode] menu appears.

2 **Use the four-way controller (▲▼) to select [AE Metering].**

3 **Press the four-way controller (▶).**
A pull-down menu appears.

4 **Use the four-way controller (▲▼) to select a metering method.**



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5 **Press the OK button.**

The setting is saved.

6 **Press the MENU button.**

The camera returns to capture status.

memo

- When the shutter release button is pressed halfway, the brightness is metered and the exposure is determined.
- When the subject is outside the focusing area and you want to use ⊡, aim the camera at the subject and press the shutter release button halfway to lock the exposure, then compose your picture again and press the shutter release button fully.
- Depending on the selected shooting mode, the AE metering setting may not be changed. Refer to “Functions Available for Each Shooting Mode” (p.238) for details.

Saving the AE Metering setting ☞p.144

Compensating Flash Output

You can adjust the flash output.

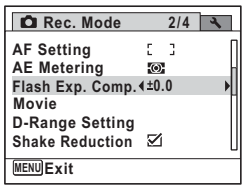
1 **Press the MENU button in 📷 mode.**

The [📷 Rec. Mode] menu appears.

2 **Use the four-way controller (▲▼) to select [Flash Exp. Comp.].**

3 **Use the four-way controller (◀▶) to select the EV value.**

To brighten, select a positive (+) value. To darken, select a negative (–) value.
You can choose the EV setting in the range of –2.0 EV to +2.0 EV in increments of 1/3 EV.



4 **Press the MENU button.**

The camera returns to capture status.

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Compensating for Brightness (D-Range Setting)

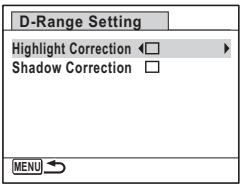
Expands the dynamic range and prevents bright and dark areas from occurring. [Highlight Correction] adjusts the bright areas when the image is too bright and [Shadow Correction] adjusts the dark areas when the image is too dark.

1 **Press the MENU button in 📷 mode.**
The [📷 Rec. Mode] menu appears.

2 **Use the four-way controller (▲▼) to select [D-Range Setting].**

3 **Press the four-way controller (▶).**
The [D-Range Setting] screen appears.

4 **Use the four-way controller (▲▼) to select [Highlight Correction] or [Shadow Correction].**



5 **Use the four-way controller (◀▶) to select ☑ or □.**

6 **Press the MENU button twice.**
The camera returns to capture status.
The D-Range Setting icon appears on the display.

D+	When [Highlight Correction] is set to ☑
D-	When [Shadow Correction] is set to ☑
D	When [Highlight Correction] and [Shadow Correction] are both set to ☑

memo When [Highlight Correction] is set to ☑, the minimum sensitivity is 125.

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Taking Pictures Using the Shake Reduction Function

You can easily take sharp pictures using the Shake Reduction function. The Shake Reduction function reduces camera shake that occurs when the shutter release button is pressed. This is useful for taking pictures in situations where camera shake is likely to occur.
The Shake Reduction function is ideal when taking pictures in the following situations:

- when taking pictures in dimly lit locations, such as indoors, at night, on cloudy days and in the shade
- when taking telephoto pictures

Blurred picture

Picture taken with the Shake Reduction function

Caution

- The Shake Reduction function does not compensate for blurring caused by subject movement. To take pictures of a moving subject, increase the shutter speed.
- The Shake Reduction function may not fully reduce camera shake when taking close-up shots. In this case, it is recommended that the camera be used with a tripod.
- The Shake Reduction function will not fully work when shooting with a slower shutter speed, for example when shooting a moving subject or night scenes. In this case, it is recommended that the camera be used with a tripod.

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To Set the Shake Reduction

By using this function, you can correct camera shake during shooting. If the Shake Reduction function is set to ☑ (On), the camera automatically corrects any camera shake in the images you shot.

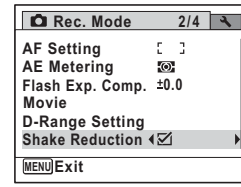
1 **Press the MENU button in 📷 mode.**

The [📷 Rec. Mode] menu appears.

2 **Use the four-way controller (▲▼) to select [Shake Reduction].**

3 **Use the four-way controller (◀▶) to select ☑ or □.**

- ☑ Automatically corrects camera shake. (Default setting)
- □ Does not correct camera shake.



4 **Press the MENU button.**

The camera returns to capture status.

Setting the Blink Detection Function

This specifies whether the Blink Detection function works when the Face Detection function is activated.

1 **Press the MENU button in 📷 mode.**

The [📷 Rec. Mode] menu appears.

2 **Use the four-way controller (▲▼) to select [Blink Detection].**

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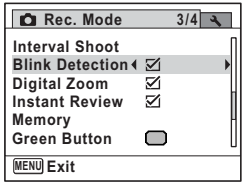
3 Use the four-way controller (◄►) to select ☑ or □.

- ☑ Blink Detection function works. (Default setting)
- □ Blink Detection function does not work.



4 Press the MENU button.

The camera returns to capture status.

Blink Detection ☞p.70

Setting the Instant Review

Use this setting to specify whether or not an Instant Review is displayed immediately after images are shot.

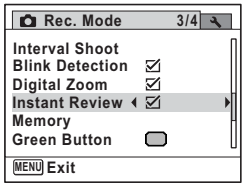
1 Press the MENU button in 📷 mode.

The [📷 Rec. Mode] menu appears.

2 Use the four-way controller (▲▼) to select [Instant Review].

3 Use the four-way controller (◄►) to select ☑ or □.

- ☑ Instant Review is displayed for 1 second. (Default setting)
- □ Instant Review is not displayed.



4 Press the MENU button.

The camera returns to capture status.

Instant Review ☞p.70

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If the Blink Detection function worked when shooting, the message [Closed eyes have been detected] appears for 3 seconds during Instant Review.

Setting the Image Sharpness (Sharpness)

You can give the image sharp or soft outlines.

1 **Press the MENU button in mode.**

The [Rec. Mode] menu appears.

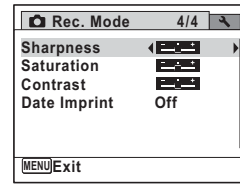
2 **Use the four-way controller (▲▼) to select [Sharpness].**

3 **Use the four-way controller (◄►) to change the sharpness level.**

− · + Soft

− · + Normal

− · + Sharp



4 **Press the MENU button.**

The camera returns to capture status.

Setting the Color Saturation/Tone (Saturation/ Tone Adjustment)

You can set either color brightness (Saturation) or the tone of monochrome images (Tone Adjustment).
The items displayed change depending on the setting in [Image Tone] of the [Rec. Mode] menu.

Image Tone Setting	Displayed Item
Bright/Natural	Saturation
Monochrome	Tone Adjustment

1 **Press the MENU button in mode.**

The [Rec. Mode] menu appears.

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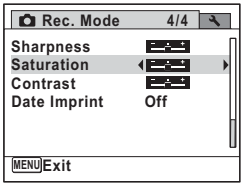
2 **Use the four-way controller (▲▼) to select [Saturation] (or [Tone Adjustment]).**

3 **Use the four-way controller (◀▶) to select the level of saturation (or the tone of monochrome images).**



	Saturation	Tone Adjustment
	Low	Blue
	Standard	B&W
	High	Sepia

4 **Press the MENU button.**

The camera returns to capture status.

Setting the Image Contrast (Contrast)

You can set the image contrast level.

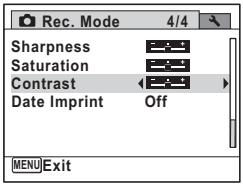
1 **Press the MENU button in mode.**

The [Rec. Mode] menu appears.

2 **Use the four-way controller (▲▼) to select [Contrast].**

3 **Use the four-way controller (◀▶) to change the contrast level.**

Low
Normal
High



4 **Press the MENU button.**

The camera returns to capture status.

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Setting the Date Imprint Function

You can choose whether to imprint the date and/or time when taking still pictures.

1 Press the MENU button in 📷 mode.

The [📷 Rec. Mode] menu appears.

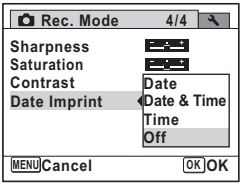
2 Use the four-way controller (▲▼) to select [Date Imprint].

3 Press the four-way controller (▶).

A pull-down menu appears.

4 Use the four-way controller (▲▼) to select the Date Imprint details.

Choose from [Date], [Date & Time], [Time] or [Off].



5 Press the OK button.

The setting is saved.

6 Press the MENU button.

The camera returns to capture status.

Caution

- The date and/or time imprinted with the Date Imprint function cannot be deleted.
- Note that if the printer or the image editing software is set to print the date and the images to be printed already have the date and/or time imprinted, the imprinted dates and/or times may overlap.

memo

- DATE appears on the display in 📷 mode when [Date Imprint] is set (p.21).
- The date and/or time are imprinted on the picture with the date format style set with “Setting the Date and Time” (p.47).

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Setting the Green Button

You can assign one of the following functions to the ● (Green) button: [● Green Mode] (p.72) or [Fn Setting]. You can activate the assigned function by just pressing the ● (Green) button.

Green Mode	Press the ● button to shoot in ● (Green) mode. (Default setting)
Fn Setting	Press the ● button to use the functions assigned to the four-way controller (▲▼◀▶). By assigning frequently used functions to the four-way controller, you can easily change the settings during shooting. The functions that can be set differ depending on the capture mode used before the **MENU** button is pressed. • When you press the **MENU** button in still picture capture mode: Still picture capture functions are assigned. • When you press the **MENU** button in movie recording mode: Movie recording functions are assigned.

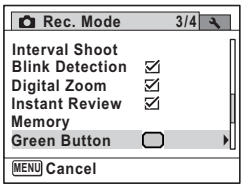
Default settings of Fn Setting

Four-way Controller	Still Picture Mode	Movie Mode
▲	Recorded Pixels	Movie SR
▼	Quality Level	Recorded Pixels
◀	White Balance	White Balance
▶	Sensitivity	Focusing Area

1 Press the MENU button in 📷 mode.

The [📷 Rec. Mode] menu appears.

2 Use the four-way controller (▲▼) to select [Green Button].



3 Press the four-way controller (▶).

The [Green Button] screen appears.

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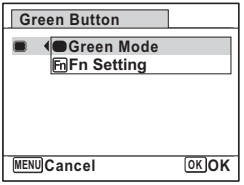
4 **Use the four-way controller (▲▼) to select the function you want to register.**

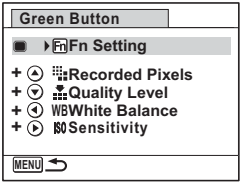
When [Green Mode] is selected, proceed to Step 9.



5 **Press the OK button.**

The Fn Setting screen appears.

6 **Use the four-way controller (▲▼) to select a key to which to assign a function.**

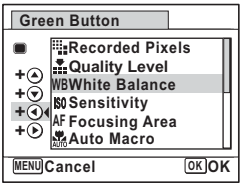


7 **Press the four-way controller (▶).**

A pull-down menu appears.

8 **Use the four-way controller (▲▼) to select the function you want to register.**

The following functions can be registered.



Still picture mode functions	Recorded Pixels/Quality Level/White Balance/Sensitivity/ Focusing Area/Auto Macro/AE Metering/Highlight Correction/Shadow Correction/Shake Reduction/ Sharpness/Saturation (Tone Adjustment)*1/Contrast
Movie mode functions	Recorded Pixels/Movie SR/White Balance/Focusing Area/ Sharpness/Saturation (Tone Adjustment)*1/Contrast

*1 When [Bright] or [Natural] is selected for [Image Tone] on the [📷 Rec. Mode] menu, [Saturation] is displayed, and when [Monochrome] is selected, [Tone Adjustment] is displayed.

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9 Press the OK button.

The setting is registered.
Repeat Steps 6 to 9 to register other keys.

10 Press the MENU button twice.

The camera returns to capture status.

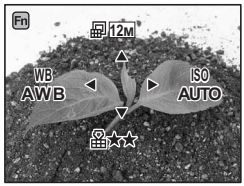
memo Only one function can be registered to each key.

To Use Fn Setting

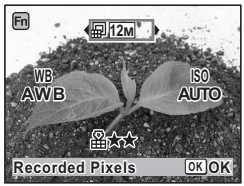
1 Press the ● button in 📷 mode.

The functions registered with Fn Setting on the [Fn Setting] screen appear.
The displayed functions differ depending on whether the camera is in still picture mode or movie mode before the ● button is pressed.

2 Use the four-way controller (▲▼◀▶) to select a function to change.



3 Use the four-way controller (▲▼ or ◀▶) to change the setting.



4 Press the OK button.

The setting is saved and the camera returns to capture status.

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Recording a Movie

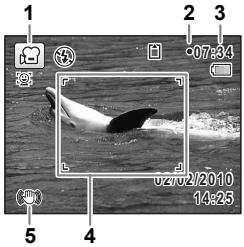
Use this to record movies. Sound is recorded at the same time.

1 In 📷 mode, set the mode dial to 🎥 (Movie).

🎥 mode is selected and the camera returns to capture status.

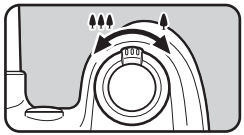
The following information appears on the display.

1 Movie mode icon
2 Recording indicator (blinks during recording)
3 Remaining recordable time
4 Focus frame (does not appear during recording)
5 Movie shake reduction icon



You can change the captured area by turning the zoom lever to the left or right.

Right ( ) Enlarges the subject.
Left ( ) Widens the area that is captured by the camera.



2 Press the shutter release button fully.

Recording starts.
You can continue recording until the built-in memory or the SD Memory Card is full, or the file size of the recorded movie reaches 2 GB.

3 Press the shutter release button fully.

Recording stops.

Playing Back a Movie ☞p.149

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- The flash does not discharge in mode.
- The focus mode can be changed before recording starts.
- When the focus mode is set to **MF** (Manual Focus), you can adjust the focus before recording starts.
- The optical zoom can be used only before recording, while the Digital Zoom is available both before and during recording.
- While recording a movie, you cannot use the **DISP** button to switch the information displayed on the monitor.
- When the shooting mode is set to , the Face Detection function is automatically activated. You can switch to Smile Capture or Face Detection Off by pressing the button before starting recording of a movie (p.70). When the Smile Capture function is selected, movie recording starts automatically when the camera detects the subject's smile. However, depending on the condition of the detected faces, movie recording may not start automatically because the Smile Capture function may not work. If this happens, press the shutter release button to start movie recording.

Keeping the Shutter Release Button Pressed

If you keep the shutter release button pressed for one second or more, recording will continue as long as you keep the button pressed. Recording stops when you take your finger off the shutter release button.

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Selecting the Recorded Pixels and Frame Rate for Movies

You can choose the number of recorded pixels and frame rate settings for movies.
The more pixels there are, the clearer the details and the bigger the file size. The more frames per second, the better the quality of the movie, but the file size becomes larger.

Settings	Recorded Pixels	Frame Rate	Use
1280 30	1280×720	30 fps	Records images in HDTV format (16:9). Movement is recorded smoothly. (Default setting)
1280 15	1280×720	15 fps	Records images in HDTV format (16:9). Increases the total recording time by making the file size smaller.
640 30	640×480	30 fps	Suitable for viewing on a TV or computer screen. Movement is recorded smoothly.
640 15	640×480	15 fps	Suitable for viewing on a TV or computer screen. Increases the total recording time by making the file size smaller.
320 30	320×240	30 fps	Suitable for posting on a website or attaching to e-mail. Movement is recorded smoothly.
320 15	320×240	15 fps	Suitable for posting on a website or attaching to e-mail. Increases the total recording time by making the file size smaller.

* The frame rate (fps) indicates the number of frames per second.

1 **Press the MENU button in 📷 mode.**
The [📷 Rec. Mode] menu appears.

2 **Use the four-way controller (▲▼) to select [Movie].**

3 **Press the four-way controller (▶).**
The [Movie] screen appears.

4 **Use the four-way controller (▲▼) to select [Recorded Pixels].**

5 **Press the four-way controller (▶).**
A pull-down menu appears.

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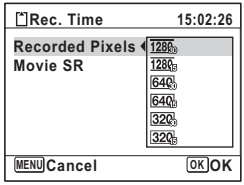
6 **Use the four-way controller (▲▼) to change the number of recorded pixels and frame rate.**



7 **Press the OK button.**
The setting is saved.

8 **Press the MENU button twice.**
The camera returns to capture status.

Setting the Movie SR (Movie Shake Reduction) Function

In 🎥 mode, you can compensate camera shake while you are recording a movie with the Movie SR (Movie Shake Reduction) function.

1 **Press the MENU button in 📷 mode.**
The [📷 Rec. Mode] menu appears.

2 **Use the four-way controller (▲▼) to select [Movie].**

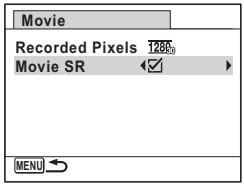
3 **Press the four-way controller (▶).**
The [Movie] screen appears.

4 **Use the four-way controller (▲▼) to select [Movie SR].**

5 **Use the four-way controller (◀▶) to select ☑ or □.**

- ☑ Automatically corrects camera shake. (Default setting)
- □ Does not correct camera shake.

The setting is saved.



6 **Press the MENU button twice.**
The camera returns to capture status.

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Saving the Settings (Memory)

The Memory function is for saving the current camera settings when the camera is turned off.
For some camera settings, the Memory function is always set to ☑ (On) (the settings are saved when the camera is turned off), while for others you can choose ☑ or □ (Off) (to choose whether the settings are saved or not when the camera is turned off). The items which can be set to ☑ or □ in the Memory function are shown in the table below. (Items not listed here are always saved in the selected settings when the camera is turned off.)
If you select ☑, the settings will be saved in the status they were in immediately before the camera was turned off. If you select □, the settings will be reset to the defaults when the camera is turned off. The table below also shows whether the Memory default setting for each item is ☑ or □.

Item	Description	Default Settings	Page
Face Detection	The Face Detection mode set by using the 😊 button	□	p.70
Flash Mode	The flash mode set with the four-way controller (◀)	☑	p.112
Drive Mode	The drive mode set with the four-way controller (▲)	□	p.92-p.97
Focus Mode	The focus mode set with the four-way controller (▶)	□	p.114
Zoom Position	The zoom position set with the zoom lever	□	p.74
MF Position	The manual focus position set with the four-way controller (▲▼)	□	p.115
White Balance	The [White Balance] setting on the [📷 Rec. Mode] menu	□	p.124
Sensitivity	The [Sensitivity] setting on the [📷 Rec. Mode] menu	□	p.126
EV Compensation	The [EV Compensation] setting on the [📷 Rec. Mode] menu	□	p.76
AE Metering	The [AE Metering] setting on the [📷 Rec. Mode] menu	□	p.128
Digital Zoom	The [Digital Zoom] setting on the [📷 Rec. Mode] menu	☑	p.76

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DISPLAY	The information display mode selected with the **DISP** button	□	p.20
File No.	If a new SD Memory Card is inserted when ☑ (On) has been selected, file numbers are assigned sequentially	☑	—

1 Press the MENU button in 📷 mode.

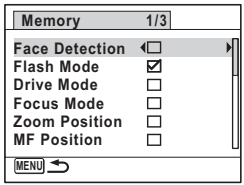
The [📷 Rec. Mode] menu appears.

2 Use the four-way controller (▲▼) to select [Memory].

3 Press the four-way controller (▶).

The [Memory] screen appears.

4 Use the four-way controller (▲▼) to choose an item.



5 Use the four-way controller (◀▶) to select ☑ or □.

6 Press the MENU button twice.

The camera returns to capture status.

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Memo

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4 Playing Back and Deleting Images

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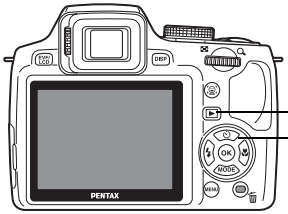
Playing Back Still Pictures



1 Press the button after taking a picture.

The camera enters the mode and the image appears on the display (Single-image display).

2 Press the four-way controller (◀▶).

The previous or next image appears.

To Delete the Displayed Image

Press the button while the image is displayed to display the Delete screen. Press the four-way controller (▲) to select [Delete] and press the **OK** button.

For information on other deletion procedures ☞p.161

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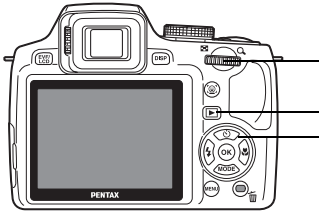
Playing Back a Movie

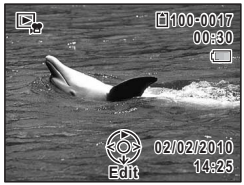
You can play back the movies you have taken. The sound is played back at the same time.



1 In ▶ mode, use the four-way controller (◀▶) to choose the movie you want to play back.

2 Press the four-way controller (▲).

Playback starts.



Available operations during playback

e-dial to the right (🔍)	Increases the volume.
e-dial to the left (⊠)	Reduces the volume.
Four-way controller (▲)	Pauses playback.
Four-way controller (▶)	Fast-forwards playback while the button is held down.
Four-way controller (◀)	Plays back in reverse. Fast-reverses playback while the button is held down.

Available operations while playback is paused

Four-way controller (▲)	Resumes playback.
Four-way controller (▶)	Forwards the frame.
Four-way controller (◀)	Reverses the frame.

3 Press the four-way controller (▼).

Playback stops.

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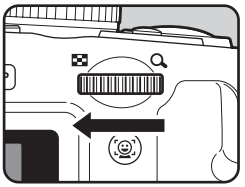
Multi-Image Display

Four-Image Display/Nine-Image Display

You can display four or nine thumbnails of captured images at a time.

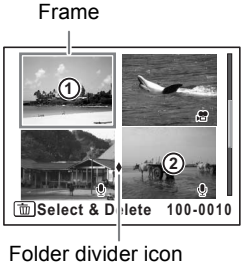
1 In ▶ mode, turn the e-dial to the left (⊠).

The four-image display appears showing a page consisting of four thumbnail images. Turn the e-dial to the left (⊠) again to switch to the nine-image display.

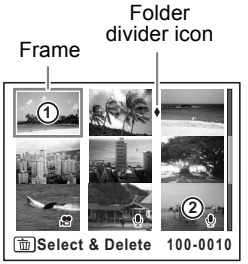


A page consisting of four or nine thumbnail images appears. The displayed images change four or nine images at a time page by page.
Use the four-way controller (▲▼◀▶) to move the frame. If there are too many images to display on one page, pressing the four-way controller (▲◀) while the image ① is selected will display the previous page. Similarly, if you choose image ② and press the four-way controller (▼▶), the next page appears.
♦ (Folder divider icon) indicates that the previous or next image is stored in a separate folder.

Four-Image Display



Nine-Image Display



The icons that appear on the images indicate the following:

(No icon)	Still picture without sound
🎙	Still picture with sound
🎞	Movie (the first frame appears)

Press the **OK** button to switch to single-image display of the selected image.
Press the ▶ button to switch to 📷 mode.

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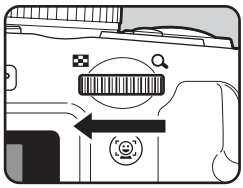
Folder Display/Calendar Display

In nine-image display, turn the e-dial to the left (⊠) to switch to folder display or calendar display.

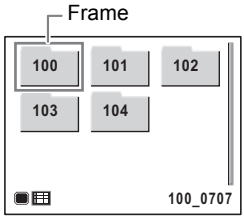
1 In ▶ mode, turn the e-dial to the left (⊠) three times.

The screen changes to folder display or calendar display.



Folder display

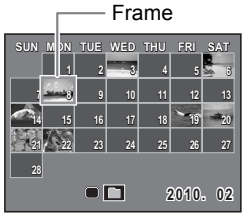
The list of folders with recorded images appears.



Four-way controller (▲▼◀▶)	Moves the frame.
e-dial to the right (🔍)/ **OK** button	Displays the images in the selected folder in nine-image display.
MENU button	Returns to nine-image display.
● button	Switches to calendar display.

Calendar display

Images are displayed by date in calendar format.
The thumbnail of the first image recorded on each date is displayed on the calendar.
🎙 appears for dates on which a still picture with voice memo was the first recorded file.



Four-way controller (▲▼◀▶)	Moves the frame.
e-dial to the right (🔍)	Displays the images recorded on the selected date in nine-image display.
OK button	Displays the first image recorded on the selected date in single-image display.
MENU button	Returns to nine-image display.
● button	Switches to folder display.

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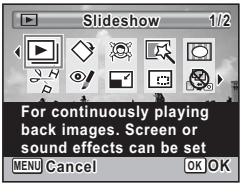
Using the Playback Function

1 **Press the four-way controller (▼) in ▶ mode.**

The Playback Mode Palette appears.

2 **Use the four-way controller (▲▼◀▶) to choose an icon.**

The guide for the selected function appears below.



3 **Press the OK button.**

The selected playback function is called up.

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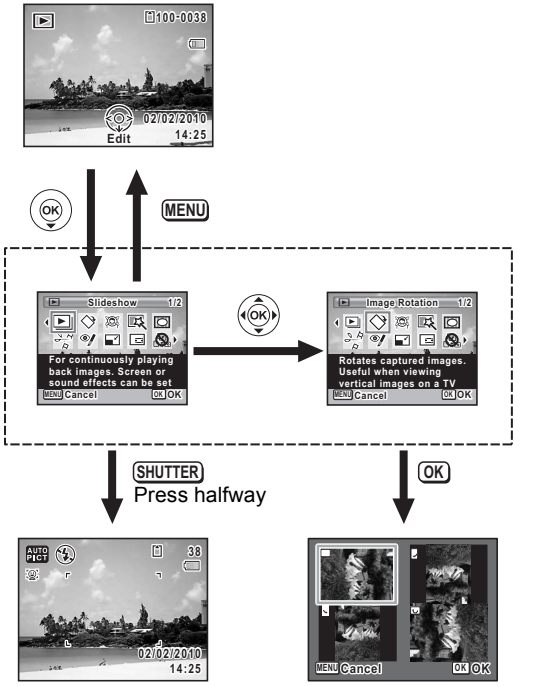

Closes the Playback Mode Palette and goes to ◘ mode.

Goes to the screen for selected playback function.

memo You can turn the guide display off for each function on the Playback Mode Palette. (p.214)

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Playback Mode Palette

Playback Mode		Description	Page
Slideshow		For continuously playing back images. Screen or sound effects can be set.	p.155
Image Rotation		Rotates captured images. Useful when viewing vertical images on a TV.	p.157
Small Face Filter		Reduces the size of faces in the image, for well-proportioned portraits.	p.178
Digital Filter		For modifying images with a Color filter or Soft filter.	p.180
Frame Composite		For composing an image with a frame. Select Overwrite or Save as to save.	p.185
Movie Edit	Save as Still Image	For saving one frame from a movie as a still picture.	p.188
	Divide Movies	For dividing a movie into two.	
Red-eye Compensation		For compensating for red-eye. May not work due to the condition of the image.	p.184
Resize		Changes Recorded Pixels and Quality Level to make the file size smaller.	p.176
Cropping		For cropping images to the size you like. Saved as a new image.	p.177
Image/Sound Copy		For copying images and sounds between the built-in memory and SD Memory Card.	p.190
Voice Memo		Attaches sound to images. Recording is possible till the memory card is full.	p.196
Protect		Protects images and sounds from accidental deletion. Formatting will delete.	p.166
DPOF		For the print settings. Useful when printing at a printing service.	p.192
Image Recovery		For recovering image and sounds which were accidentally deleted.	p.165
Start-up Screen		For setting a captured image as the Start-up Screen.	p.214

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Slideshow

You can play back recorded images one after another.

1 **In ▶ mode, use the four-way controller (◀▶) to choose the image to start the slideshow with.**

2 **Press the four-way controller (▼).**

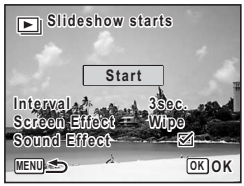
The Playback Mode Palette appears.

3 **Use the four-way controller (▲▼◀▶) to select (Slideshow).**

4 **Press the OK button.**

The slideshow setting screen appears.

5 **Use the four-way controller (▲▼) to select [Start].**



6 **Press the OK button.**

The slideshow starts.

Pressing the **OK** button during the slideshow pauses the slideshow. To resume the slideshow, press the **OK** button again.

7 **Press any button other than the OK button.**

The slideshow stops.

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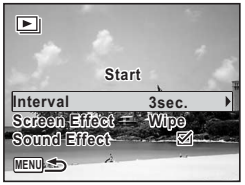
To Set the Slideshow Conditions

You can set the playback interval and also a screen effect and sound effect for when one image changes to the next.

1 **Use the four-way controller (▲▼) to select [Interval] in Step 5 on p.155.**



2 **Press the four-way controller (▶).**

A pull-down menu appears.

3 **Use the four-way controller (▲▼) to change the interval and press the OK button.**

Choose from [3sec.], [5sec.], [10sec.], [20sec.] or [30sec.].

4 **Use the four-way controller (▲▼) to select [Screen Effect].**

5 **Press the four-way controller (▶).**

A pull-down menu appears.

6 **Use the four-way controller (▲▼) to choose the screen effect and press the OK button.**

Wipe	The next image slides over the previous one from left to right
Checker	The next image appears in small square mosaic blocks
Fade	The current image gradually fades out and the next image fades in
Off	No effect

7 **Use the four-way controller (▲▼) to select [Sound Effect].**

8 **Use the four-way controller (◀▶) to select ☑ or □.**

Except when [Screen Effect] is set to [Off], you can choose ☑ or □ for the sound that is played when one image changes to the next.

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9 Use the four-way controller (▲▼) to select [Start] and press the OK button.

The slideshow starts using the selected interval and effect.

memo

- The slideshow will continue until you press any button other than the **OK** button.
- Movies or pictures with sound will be played through to the end before the next picture is played back, regardless of the interval setting. However, pressing the four-way controller (▶) while playing back a movie or a picture with sound skips to the next image.
- Panorama images will be scrolled for display from left to right in 4 seconds before the next picture is played back, regardless of the interval or screen effect setting.

Connecting the Camera to AV Equipment ☞p.169

Rotating the Image

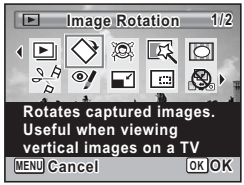
1 Press the ▶ button after taking a picture.

The image appears on the display.

2 Press the four-way controller (▼).

The Playback Mode Palette appears.

3 Use the four-way controller (▲▼◀▶) to select ◇ (Image Rotation).



4 Press the OK button.

The rotation selection screen (0°, Right 90°, Left 90°, or 180°) appears.

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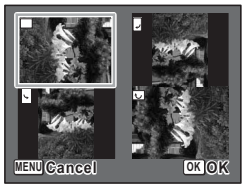
5 Use the four-way controller (▲▼◀▶) to choose the rotation direction and press the OK button.

The rotated image is saved.



memo

- Images taken with the ▮▮◀ (Digital Panorama) mode and movies cannot be rotated.
- Protected images can be rotated, but they cannot be saved in a rotated state.

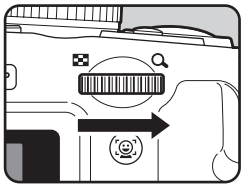
Zoom Playback

You can magnify an image up to ten times.

1 In ▶ mode, use the four-way controller (◀▶) to choose the image you want to magnify.

2 Turn the e-dial to the right (🔍).

The image is magnified (×1.1 to ×10). Continuing to turn the e-dial to the right (🔍) changes the magnification continuously.



You can use the guide mark "+" that appears at the bottom left of the screen to check which portion of the image is magnified.

Guide

Available operations while an image is magnified

Four-way controller (▲▼◀▶)	Moves the position to be magnified
e-dial to the right (🔍)	Makes the image larger (max. ×10)
e-dial to the left (▣)	Makes the image smaller (min. ×1.1)

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3 Press the OK button.

The image returns to single-image display.

- When [Quick Zoom] (p.213) is set to ☑ (On), you can magnify the image at 10x by simply rotating the e-dial to the right (🔍) once.
- Movies cannot be magnified.

Zoom In on the Subject's Face Automatically (Face Close-up Playback)

You can enjoy playing back images with the subjects' faces zoomed up simply by pressing the 🙂 button (Face close-up playback) if the Face Detection function operated when the images were taken.

1 In ▶ mode, use the four-way controller (◀ ▶) to choose the image you want to magnify.

2 Confirm that the 🙂 icon is displayed in the image and press the 🙂 button.

The image is magnified around the face first detected when the image was taken.

If multiple faces were detected when the image was taken, the subjects' faces are zoomed up on each time the 🙂 button is pressed in order of the detection during shooting.

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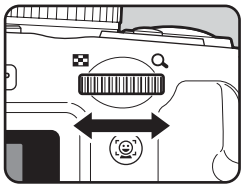
Available operations during Face close-up playback mode

e-dial to the right (🔍)	Zooms in on the subject being displayed for face close-up playback from an equal or slightly larger magnification ratio.
e-dial to the left (▪)	Zooms out on the subject being displayed for face close-up playback from an equal or slightly smaller magnification ratio.



3 Press the OK button.

The image returns to single-image display.

memo The magnification ratio for Face close-up playback may differ depending on the conditions such as the size of the face detected when shooting.

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Deleting Images

You can delete images that you do not want to keep.

When images or sounds are inadvertently deleted
Deleted images and sounds can be recovered with the X90 (p.165).
Deleted images and sounds can be recovered even if the camera has been turned off after deletion as long as the SD Memory Card has not been removed. However, deleted images and sounds cannot be recovered after operations to write data such as taking pictures, recording movies, protecting images, saving DPOF settings, resizing images, cropping images, or formatting has been performed.

Deleting a Single Image

You can delete a single image.

Caution Protected images cannot be deleted (p.166).

1 **In ▶ mode, use the four-way controller (◀▶) to choose the image you want to delete.**

2 **Press the 🗑 button.**
A confirmation screen appears.

3 **Press the four-way controller (▲) to select [Delete].**

4 **Press the OK button.**
The image is deleted.

Recovering Deleted Images ☞p.165

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To Delete the Sound from an Image

If sound (voice memo) has been added to an image (p.196), you can delete the sound without deleting the image.

1 **In ▶ mode, use the four-way controller (◀▶) to choose the image with sound.**

♪ appears on the images with sound.

2 **Press the 🗑 button.**

A confirmation screen appears.

3 **Use the four-way controller (▲▼) to select [Delete Sound].**

4 **Press the OK button.**

The sound data is deleted.

memo
- Select [Delete] in Step 3 to delete both the image and sound data.
- You cannot delete only the sound in a movie.

Deleting Selected Images

You can delete several images selected from the four-/nine-image display at once.

Caution
Protected images cannot be deleted (p.166).

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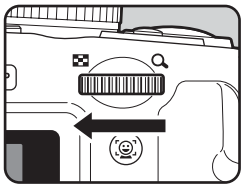
1 **In ▶ mode, turn the e-dial to the left (⊠) once or twice.**

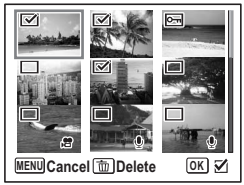
Four-image display or nine-image display appears.



2 **Press the 🗑 button.**

□ appears on the images.

3 **Use the four-way controller (▲▼◀▶) to choose the images that you want to delete and press the OK button.**



☑ appears on the selected images.

Turn the e-dial to the right (🔍) to display the selected image in a single screen and check whether you want to delete it or not. Turning to the left returns to four/nine-image display. However, protected images cannot be displayed in single-image display.

4 **Press the 🗑 button.**

A confirmation dialog appears.

5 **Press the four-way controller (▲) to select [Select & Delete].**

6 **Press the OK button.**

The selected images are deleted.

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Deleting All Images

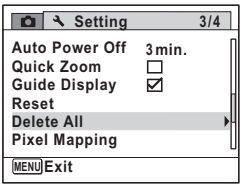
You can delete all the images at once.

Caution Protected images cannot be deleted (p.166).

1 Press the MENU button in ▶ mode.

The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

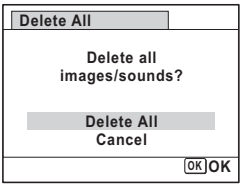
2 Use the four-way controller (▲▼) to select [Delete All].



3 Press the four-way controller (▶).

The [Delete All] screen appears.

4 Press the four-way controller (▲) to select [Delete All].



5 Press the OK button.

All the images are deleted.

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Recovering Deleted Images

You can recover images or sounds that were taken with this camera and then deleted.

Caution

If any of the following operations have been performed after deleting an image, the deleted image cannot be recovered.

- Taking a picture/movie or recording a voice memo
- Protect setting/DPOF setting/Resizing/Cropping
- Formatting
- Removing the SD Memory Card

1 After deleting the image(s), press the four-way controller (▼).

The Playback Mode Palette appears.

2 Use the four-way controller (▲▼◄►) to select (Image Recovery).

When is displayed, there are no images that can be recovered.

3 Press the OK button.

The number of recoverable images appears.
If you selected and pressed the **OK** button, the message [No image to be processed] appears. In this case, press the **OK** button to return to the Playback Mode Palette.

4 Press the four-way controller (▲) to select [Recover].

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5 **Press the OK button.**

The images are recovered.

- Recovered images/sounds have the same file name as before they were deleted.
- Up to a maximum of 999 deleted image files can be recovered.

Protecting Images from Deletion (Protect)

You can protect stored images from being accidentally deleted.

1 **In ▶ mode, use the four-way controller (◀▶) to choose the image you want to protect.**

2 **Press the four-way controller (▼).**

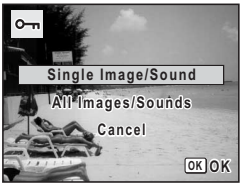
The Playback Mode Palette appears.

3 **Use the four-way controller (▲▼◀▶) to select (Protect).**

4 **Press the OK button.**

The screen for selecting [Single Image/Sound] or [All Images/Sounds] appears.

5 **Use the four-way controller (▲▼) to select [Single Image/Sound].**



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6 Press the OK button.

The message [Protects this image/sound] appears.
To protect another image, use the four-way controller (◄►) to select another image.

7 Use the four-way controller (▲▼) to select [Protect].

8 Press the OK button.

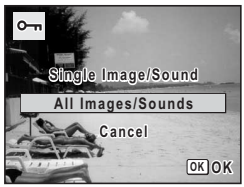
The selected image is protected and the screen shown in Step 5 reappears.
To protect other images, repeat Steps 5 to 8. Select [Cancel] to exit the Protect setting.

memo

- To cancel the protection of the image, select [Unprotect] in Step 7.
- 🔑 appears on the protected images during playback.
- The maximum number of images you can protect in succession with [Single Image/Sound] is 99.

To Protect All Images

1 Select [All Images/Sounds] in Step 5 on p.166.



2 Press the OK button.

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3 Use the four-way controller (▲▼) to select [Protect].

4 Press the OK button.

All the images are protected and the screen shown in Step 1 reappears.

5 Use the four-way controller (▲▼) to select [Cancel] and press the OK button.

The Playback Mode Palette reappears.

Caution Protected images will be deleted when the SD Memory Card is formatted (p.200).

memo To cancel the protection of all your images, select [Unprotect] in Step 3.

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Connecting the Camera to AV Equipment

By connecting the camera to a TV or other device with a video IN jack or HDMI terminal, you can play back images.
Choose a terminal type that matches your purpose or AV device.

	AV Cable	Output during Shooting	Output during Playback
Video Out	Provided (I-AVC7)	✓	✓
HDMI Out	Commercially available *1	×	✓

*1 The camera has a Type D HDMI terminal.

memo

- If you intend to use the camera continuously for a long period, use of the AC adapter kit K-AC106 (optional) is recommended. (p.35)
- For AV device with multiple video IN jacks, check the operating manual of the AV device, and select the video IN jack to which the camera is connected.
- You cannot output a composite and HDMI video signal at the same time.
- You cannot adjust the volume on the camera when connected to an AV device. Adjust the volume on the AV device.

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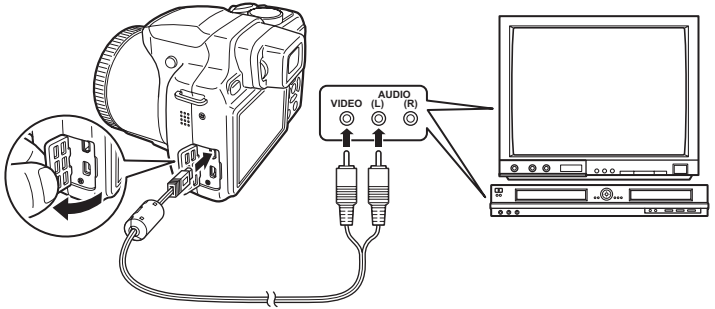
Connecting the Camera to a Video IN Jack

Use the provided AV cable (I-AVC7) to connect the camera to a device with a video IN jack.

1 **Turn the AV device and camera off.**

2 **Open the terminal cover, face the arrow on the provided AV cable toward the ▲ mark on the camera, and connect the cable to the PC/AV terminal.**



3 **Connect the other end of the AV cable to the video IN jack on the AV device.**

4 **Turn the AV device and camera on.**

The camera turns on in video mode, and the camera information is displayed on the screen of the connected AV device.

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To Select the Video Output Format

When the hometown is set with the initial setting (p.43), the video output format is set in accordance with that region. Depending on the country or region, images may fail to be played back with the set video output format. If this happens, change the video output format setting.

1 **Turn the camera on.**

2 **Press the MENU button in ▶ mode.**

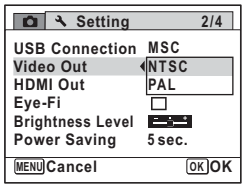
The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

3 **Use the four-way controller (▲▼) to select [Video Out].**

4 **Press the four-way controller (▶).**

A pull-down menu appears.

5 **Use the four-way controller (▲▼) to select [NTSC] or [PAL].**



6 **Press the OK button.**

The setting is saved.

7 **Press the MENU button.**

The camera returns to 📷 mode or ▶ mode.

memo

The video output format differs depending on the region. When you set [Select Time] in the World Time setting (p.205) to ✈ (Destination), the video output setting changes to the video output format for that city.

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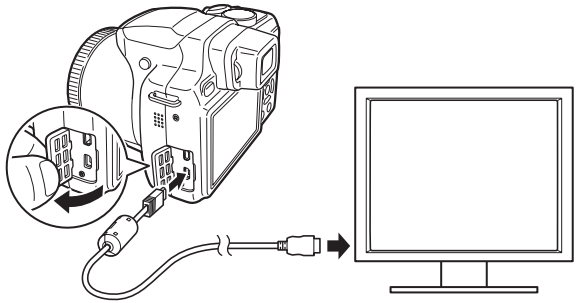
Connecting the Camera to an HDMI Terminal

Use a commercially available HDMI cable to connect the camera to a device with an HDMI terminal.

1 **Turn the AV device and camera off.**

2 **Open the terminal cover and connect the HDMI cable to the HDMI terminal.**



3 **Connect the other end of the HDMI cable to the HDMI IN jack on the AV device.**

4 **Turn the AV device and camera on.**

The camera turns on in HDMI mode, and the camera information is displayed on the screen of the connected AV device.

memo

- The camera has a Type D HDMI terminal. Use a commercially available HDMI cable that matches your AV device.
- Nothing is displayed on the camera monitor during HDMI output.

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To Select the HDMI Output Format

Set the output signal format of the HDMI terminal.

1 Turn the camera on.

2 Press the MENU button in ▶ mode.

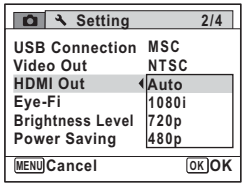
The [🔧 Setting] menu appears.
When you press the MENU button in 📷 mode, press the four-way controller (▶) once.

3 Use the four-way controller (▲▼) to select [HDMI Out].

4 Press the four-way controller (▶).

A pull-down menu appears.

5 Use the four-way controller (▲▼) to select an HDMI output format.



Auto	The maximum size which the camera and AV device support is automatically selected. (Default setting)
1080i	1920×1080i
720p	1280×720p
480p*1	720×480p

*1 When [480p] is selected, HDMI output format switches between 480p [NTSC] and 576p (720×576p) [PAL] depending on the video output format setting.

6 Press the OK button.

The setting is saved.

7 Press the MENU button.

The camera returns to 📷 mode or ▶ mode.

memo When the HDMI output format is set to [1080i] or [720p], the display may appear with a screen design that differs from that displayed on the camera.

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Memo

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5 Editing and Printing Images

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Changing the Image Size (Resize)

By changing the recorded pixels and quality of a selected image, you can make its file size smaller than the original. You can use this function to continue taking pictures when the SD Memory Card or the built-in memory is full, by making the images smaller and overwriting the original images to make more space available.

Caution

- Images taken with the recorded pixels of 10.7M 3:2 (4000×2672)/ 9M 16:9 (4000×2256)/ 9M 1:1 (2992×2992) or with the ▮▮◧ (Digital Panorama) mode and movies cannot be resized.
- You cannot select a larger resolution and higher quality level than that of the original image.

1 In ▶ mode, use the four-way controller (◀▶) to choose the image you want to resize.

2 Press the four-way controller (▼).

The Playback Mode Palette appears.

3 Use the four-way controller (▲▼◀▶) to select ◪ (Resize).

4 Press the OK button.

The screen for choosing the number of recorded pixels and quality level appears.

5 Select [Recorded Pixels] or [Quality Level].

Use the four-way controller (◀▶) to choose the recorded pixels and quality.
Use the four-way controller (▲▼) to switch between [Recorded Pixels] and [Quality Level].

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6 Press the OK button.

A confirmation dialog for overwriting the image appears.
If the selected image is protected, the processed image is saved as a new image and the following confirmation dialog does not appear.

7 Use the four-way controller (▲▼) to select [Overwrite] or [Save as].

8 Press the OK button.

The resized image is saved.

Cropping Images

You can delete the unwanted part of a picture and save the cropped image as a new image.

Caution

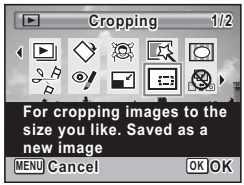
Images taken with the recorded pixels of 10.7M 3:2 (4000×2672)/ 9M 16:9 (4000×2256)/ 9M 1:1 (2992×2992) or with the ▮▮◀ (Digital Panorama) mode and movies cannot be cropped.

1 In ▶ mode, use the four-way controller (◀▶) to choose the image you want to crop.

2 Press the four-way controller (▼).

The Playback Mode Palette appears.

3 Use the four-way controller (▲▼◀▶) to select ⬚ (Cropping).



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4 Press the OK button.

The cropping screen appears.
The largest size of the cropped image is shown with a green frame on the screen. The cropped image cannot be larger than this cropping frame size.

5 Choose the cropping area.

The following operations move the green frame and set the area for cropping on the screen.

e-dial	Changes the size of the cropping frame.
Four-way controller (▲▼◀▶)	Moves the cropping frame up, down, left and right
● button	Rotates the cropping frame • The button is only displayed when the cropping frame can be rotated.

6 Press the OK button.

The cropped image is saved with a new file name.
The number of recorded pixels is selected automatically according to the size of the cropped image.

Processing Images So That Faces Look Smaller

Images are processed to reduce the size of people's faces detected with the Face Detection function (p.70) when taking pictures so that they look smaller.

1 In ▶ mode, use the four-way controller (◀▶) to choose the image you want to edit.

2 Press the four-way controller (▼).

The Playback Mode Palette appears.

3 Use the four-way controller (▲▼◀▶) to select (Small Face Filter).

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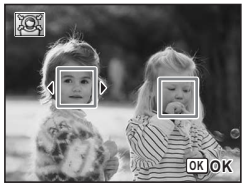
4 **Press the OK button.**

Face detection frames appear on the faces that can be corrected. Proceed to Step 6 when there is only one detection frame.

5 **Use the four-way controller (▲▼◄►) to select a face to be processed.**

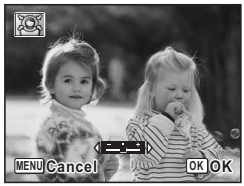
A green frame indicates the face that is to be processed.



6 **Press the OK button.**

7 **Use the four-way controller (◄►) to change the reduction ratio.**

Approx. 5 %
Approx. 7 %
Approx. 10 %



8 **Press the OK button.**

A confirmation dialog for overwriting the image appears.
If the selected image is protected, the processed image is saved as a new image and the following confirmation dialog does not appear.

9 **Use the four-way controller (▲▼) to select [Overwrite] or [Save as].**

10 **Press the OK button.**

The camera returns to ▶ mode and the processed image is displayed.

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Caution

You may not be able to process images in the following situations:
- when the size of face is too large or too small in relation to an image
- when faces are located in the edges of an image

In such cases, the face detection frame in Step 4 will not appear.

Using the Digital Filters

This function lets you change the color tones and perform special processing on a selected image.

B&W	Processes the image into one that has the look of a black and white photograph.
Sepia	Processes the image into one that has the look of a sepia photograph.
Toy Camera	Processes the image that looks as though it was shot with a toy camera.
Retro	Processes the image into one that has the look of an old photo.
Color	Processes the image using the selected color filter. You can choose from six filters: red, pink, purple, blue, green, and yellow.
Extract Color	Extracts only a specific color and processes the rest of the image into black and white. You can choose from three filters: red, green, and blue.
Color Emphasis	There are four filters: Sky Blue/Fresh Green/Delicate Pink/Autumn Leaves.
Soft	Processes the image into a soft image that appears soft overall.
Fish-eye	Creates an image that looks as though it was shot with a fish-eye lens.
Brightness	Adjusts the brightness of the image.

Caution

Movies, images taken with the ▮■◀ (Digital Panorama) mode or images taken with another camera cannot be edited using Digital Filter function.

1 In ▶ mode, use the four-way controller (◀▶) to choose the image you want to edit.

2 Press the four-way controller (▼).

The Playback Mode Palette appears.

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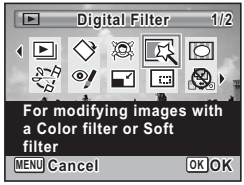
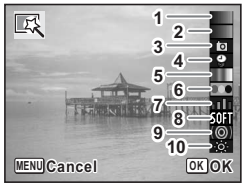
3 Use the four-way controller (▲▼◀▶) to select (Digital Filter).



4 Press the OK button.

The filter selection screen appears.

1 B&W
2 Sepia
3 Toy Camera
4 Retro
5 Color
6 Extract Color
7 Color Emphasis
8 Soft
9 Fish-eye
10 Brightness



Subsequent steps vary depending on your selection.

To Select a B&W, Sepia or Soft Filter

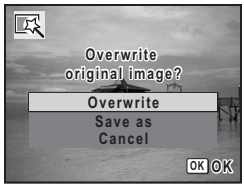
5 Use the four-way controller (▲▼) to choose a filter.

The preview image of the result of the filter effect appears.

6 Press the OK button.

A confirmation dialog for overwriting the image appears.
If the selected image is protected, the processed image is saved as a new image and the following confirmation dialog does not appear.

7 Use the four-way controller (▲▼) to select [Overwrite] or [Save as].



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8 Press the OK button.

The image processed with the filter is saved.

To Select a Retro, Color, Extract Color or Color Emphasis Filter

5 Use the four-way controller (▲▼) to choose a filter.

The preview image of the result of the filter effect appears.

6 Use the four-way controller (◄►) to choose the color.

The filter color changes in the following sequence each time the four-way controller (►) is pressed.

Retro	Original image → Amber → Blue
Color	Red → Pink → Purple → Blue → Green → Yellow
Extract Color	Red → Green → Blue
Color Emphasis	Sky Blue → Fresh Green → Delicate Pink → Autumn Leaves

7 Press the OK button.

A confirmation dialog for overwriting the image appears.
If the selected image is protected, the processed image is saved as a new image and the following confirmation dialog does not appear.

8 Use the four-way controller (▲▼) to select [Overwrite] or [Save as].

9 Press the OK button.

The image processed with the filter is saved.

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5 Use the four-way controller (▲▼) to choose a filter.

The preview image of the result of the filter effect appears.

6 Use the four-way controller (◄►) to adjust the effect.

	Four-way controller (◄)	Default Setting	Four-way controller (►)
Toy Camera	Weak	Standard	Strong
Fish-eye	Weak	Medium	Strong
Brightness	Dark	Standard	Bright

7 Press the OK button.

A confirmation dialog for overwriting the image appears.
If the selected image is protected, the processed image is saved as a new image and the following confirmation dialog does not appear.

8 Use the four-way controller (▲▼) to select [Overwrite] or [Save as].

9 Press the OK button.

The image processed with the filter is saved.

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Compensating for Unwanted Red-eye Effects

You can correct images where the flash has caused the subject to appear with red eyes.

Caution

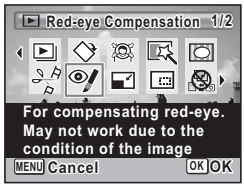
- The red-eye compensation function cannot be used on images taken with the ▮▮◖ (Digital Panorama) mode, movies or on images where red eyes cannot be detected on the camera. If you choose them to apply this function, an error message appears in Step 4.
- The red-eye compensation function can only be used with still pictures taken with this camera.

1 **In ▶ mode, use the four-way controller (◀▶) to choose the image you want to correct.**

2 **Press the four-way controller (▼).**

The Playback Mode Palette appears.

3 **Use the four-way controller (▲▼◀▶) to select (Red-eye Compensation).**



4 **Press the OK button.**

A confirmation dialog for overwriting the image appears.
If the selected image is protected, the processed image is saved as a new image and the following confirmation dialog does not appear.

5 **Use the four-way controller (▲▼) to select [Overwrite] or [Save as].**

6 **Press the OK button.**

The edited image is saved.

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Adding a Frame (Frame Composite)

This function lets you add a decorative frame to still pictures. There are 90 frames already stored in the camera.

Caution

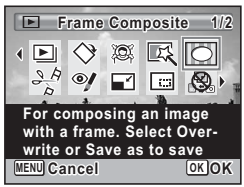
The Frame Composite function cannot be used on images taken with the recorded pixels of 10.7M (4000×2672)/ 9M (4000×2256)/ 9M (2992×2992), images taken with the ▮▮▮ (Digital Panorama) mode, movies, and images of size 3M (2048×1536) or smaller. If you choose them to apply this function, an error message appears in Step 4.

1 **In ▶ mode, use the four-way controller (◀▶) to choose the image to which you want to add a frame.**

2 **Press the four-way controller (▼).**

The Playback Mode Palette appears.

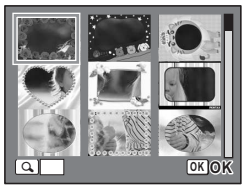
3 **Use the four-way controller (▲▼◀▶) to select ⬭ (Frame Composite).**



4 **Press the OK button.**

The 9-frame display of the frame selection screen appears.

5 **Use the four-way controller (▲▼◀▶) to choose a frame.**



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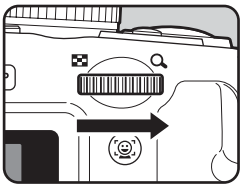
6 Turn the e-dial to the right (🔍).



The selected frame appears in single-image display.
You can choose another frame using either of the following operations.

Four-way controller (◄►)	Lets you choose a different frame.
e-dial to the left (⚄)	Returns to the 9-frame display of the frame selection screen, and then lets you choose a different frame in the same way as Step 5.

7 Press the OK button.

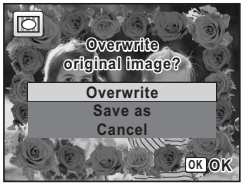
The frame position and size adjustment screen appears.
You can adjust them using either of the following operations.

Four-way controller (▲▼◄►)	Lets you adjust the position of the image
e-dial	Makes the image larger or smaller.

8 Press the OK button.

A confirmation dialog for overwriting the image appears.
If the selected image is protected, the processed image is saved as a new image and the following confirmation dialog does not appear.

9 Use the four-way controller (▲▼) to select [Overwrite] or [Save as].



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10 Press the OK button.

The edited image is saved with the recorded pixels of 3M (2048×1536).

Optional Frames

The optional frames are stored in the built-in memory in the X90. These optional frames are deleted if the files on the built-in memory are deleted with a computer or the built-in memory is formatted. To reload the optional frames into the built-in memory, copy the files from the CD-ROM (S-SW104) supplied with the camera.

To Copy Frames

1. **Remove the SD Memory Card from the camera.**
   If you leave the SD Memory Card in the camera, the frames will be copied onto the card, not into the camera's built-in memory.
2. **Connect the camera to the computer using the provided USB cable (I-USB7).**
   Refer to "Viewing Images on a Computer" (p.219) for instructions on connecting the camera to a computer.
3. **When the device detection window opens, click [Cancel].**
4. **Insert the CD-ROM (S-SW104) into the CD-ROM drive.**
5. **When the installer window opens, click [EXIT].**
6. **If there is not already a "FRAME" folder in the root directory of the camera (removable disk), create the folder.**
7. **Copy the desired files from the FRAME folder in the root directory of the CD-ROM to the FRAME folder on the camera (removable disk).**
   For information on working with files on your computer, refer to the instruction manual supplied with the computer.
8. **Disconnect the USB cable from the computer and camera.**
   Refer to "Viewing Images on a Computer" (p.219) for instructions on disconnecting the cable.

Caution

Frames can be stored both in the built-in memory and on the SD Memory Cards, but using large numbers of frames may slow down processing speed.

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To Use a New Frame

The frames downloaded from the PENTAX website or other source can be used for adding a frame to pictures.

- Extract the downloaded frame and copy it to the FRAME folder in the built-in memory or the SD Memory Card.
- The FRAME folder is created when the SD Memory Card is formatted with this camera.
- For more information on downloading, refer to the PENTAX website.

Editing Movies

You can select a frame from the recorded movie to save as a still picture or divide a movie into two.

1 **In ▶ mode, use the four-way controller (◀▶) to choose the movie you want to edit.**

2 **Press the four-way controller (▼).**
The Playback Mode Palette appears.

3 **Use the four-way controller (▲▼◀▶) to select (Movie Edit).**

4 **Press the OK button.**
The movie edit selection screen appears. Subsequent steps vary depending on your selection.

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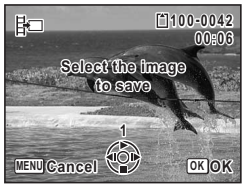
To Save a Frame from a Movie as a Still Picture

5 **Select [Save as Still Image] on the movie edit selection screen.**

6 **Press the OK button.**

The screen appears for selecting a frame to be saved as a still picture.

7 **Use the four-way controller (▲▼◄►) to choose the frame you want to save.**



- ▲ Plays or pauses the movie
- ▼ Stops the movie and returns to the first frame
- ◄ Reverses the movie frame by frame
- ► Advances the movie frame by frame

8 **Press the OK button.**

The selected frame is saved as a still picture.

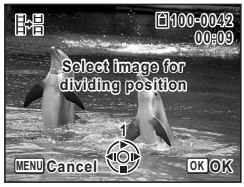
To Divide a Movie

5 **Select [Divide Movies] on the movie edit selection screen.**

6 **Press the OK button.**

The screen for choosing the dividing position appears.

7 **Use the four-way controller (▲▼◄►) to determine the dividing position.**



- ▲ Plays or pauses the movie
- ▼ Stops the movie and returns to the first frame
- ◄ Reverses the movie frame by frame
- ► Advances the movie frame by frame

8 **Press the OK button.**

A confirmation dialog appears.

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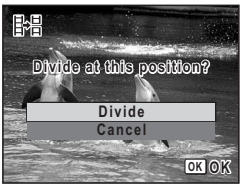
9 Use the four-way controller (▲▼) to select [Divide].



10 Press the OK button.

The movie is divided at the specified position, the two portions are saved as new files, and the original one is deleted.

Caution The protected movies cannot be divided.

Copying Images

You can copy images from the built-in memory to the SD Memory Card and vice versa. This function can only be selected when an SD Memory Card has been inserted in the camera.

Caution Make sure that the camera is turned off before inserting or removing the SD Memory Card.

1 Press the four-way controller (▼) in ▶ mode.

The Playback Mode Palette appears.

2 Use the four-way controller (▲▼◀▶) to select (Image/Sound Copy).

3 Press the OK button.

The copying method selection screen appears.
Subsequent steps vary depending on your selection.

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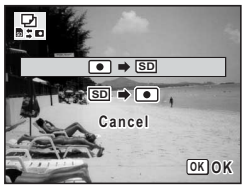
To Copy Files from the Built-in Memory to the SD Memory Card

All the images in the built-in memory are copied to the SD Memory Card at once. Before copying the images, make sure that there is enough space on the SD Memory Card.

4 **Use the four-way controller (▲▼) to select [● ➡ SD].**



5 **Press the OK button.**

All the images are copied to the SD Memory Card.

To Copy Files from the SD Memory Card to the Built-in Memory

Selected images from the SD Memory Card are copied to the built-in memory one by one at a time.

4 **Use the four-way controller (▲▼) to select [SD ➡ ●].**

5 **Press the OK button.**

6 **Use the four-way controller (◀▶) to select the image you want to copy.**

7 **Press the OK button.**

The selected image is copied to the built-in memory.

memo

- If sound (voice memo) has been added to an image, the image is copied with the sound.
- When a file is copied from the SD Memory Card to the built-in memory, it is assigned a new file name.

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Setting the Printing Service (DPOF)

DPOF (Digital Print Order Format) is the format for storing print order data on still pictures captured with a digital camera. Once the print order data has been stored, the pictures can be printed according to the DPOF settings using a DPOF-compatible printer or photo processing lab. You cannot store print order data for movies.

Caution

If the picture already has the date and/or time imprinted on it (p.136), do not set [Date] to ☑ (On) in DPOF setting. If you select ☑, the imprinted date and/or time may overlap.

Printing a Single Image

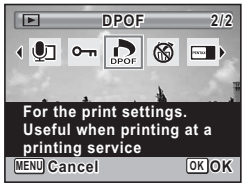
Set the following items for each image.

Copies	Choose the number of copies up to 99.
Date	Specify whether you want the date inserted on the print or not.

1 In ▶ mode, press the four-way controller (▼).

The Playback Mode Palette appears.

2 Use the four-way controller (▲▼◀▶) to select DPOF (DPOF).



3 Press the OK button.

The DPOF setting method selection screen appears.

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4 Use the four-way controller (▲▼) to select [Single Image].

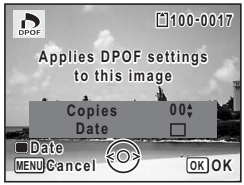
5 Press the OK button.

The message [Applies DPOF settings to this image] appears.

6 Use the four-way controller (◀▶) to select an image.

If DPOF settings have already been made for the selected image, the previous number of copies and date setting (☑ or □) will be displayed.

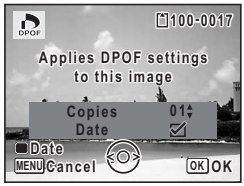
7 Use the four-way controller (▲▼) to choose the number of copies.



8 Press the ● button to switch ☑ or □ for [Date] setting.

- ☑ The date will be imprinted.
- □ The date will not be imprinted.

To continue setting DPOF print order data, repeat Steps 6 to 8.



9 Press the OK button.

The settings are saved and the screen shown in Step 4 reappears.

Caution Depending on the printer or printing equipment at the photo processing lab, the date may not be imprinted on the pictures even if ☑ (On) is selected in the DPOF setting.

memo To cancel DPOF settings, set the number of copies to [00] in Step 7 and press the **OK** button.

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Printing All Images

When you choose the number of copies and whether or not to insert the date, the settings are applied to all the images stored in the camera.

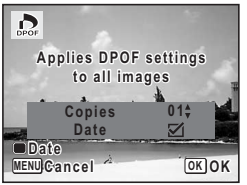
1 Select [All Images] in Step 4 on p.193.

2 Press the OK button.

The message [Applies DPOF settings to all images] appears.

3 Choose the number of copies and switch ☑ or □ for [Date] setting.

Refer to Steps 7 and 8 in “Printing a Single Image” (p.193) for details on how to make the settings.



4 Press the OK button.

The settings for all the images are saved and the DPOF setting method selection screen reappears.

Caution

- The number of copies specified in the [All Images] setting applies to all the images. Before printing, check that the number is correct.
- Settings for single images are canceled when settings are made with [All Images].

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6 Recording and Playing Back Sound

Adding a Voice Memo to Images 196

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Adding a Voice Memo to Images

You can add a voice memo to your still pictures.

Recording a Voice Memo

1 **In ▶ mode, use the four-way controller (◀▶) to choose the still picture to which you want to add a voice memo.**

2 **Press the four-way controller (▼).**
The Playback Mode Palette appears.

3 **Use the four-way controller (▲▼◀▶) to select (Voice Memo).**

4 **Press the OK button.**
Recording starts.

5 **Press the OK button.**
Recording stops.

memo

- A voice memo cannot be added to the image that already has a voice memo. Delete the old voice memo (p.162) and record a new one.
- A voice memo cannot be added to protected images (p.166).

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Playing Back a Voice Memo

1 **In ▶ mode, use the four-way controller (◀▶) to choose the still picture with the voice memo that you want to play back.**

♪ appears on images with voice memos in single-image display.

2 **Press the four-way controller (▲).**

Playback starts.

Available operations during playback

e-dial to the right (🔍)	Increases the volume
e-dial to the left (⊠)	Reduces the volume

3 **Press the four-way controller (▼).**

Playback stops.

To Delete the Sound from an Image ☞p.162

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Memo

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7 Settings

Camera Settings 200

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Formatting an SD Memory Card

Formatting deletes all the data on the SD Memory Card.
Be sure to use this camera to format (initialize) an SD Memory Card that is unused or has been used on other cameras or digital devices.

Caution

- Do not remove the SD Memory Card during formatting as this may damage the card and render it unusable.
- Formatting deletes protected images and any data recorded on the card with a computer or any camera.
- SD Memory Cards formatted on a computer or device other than this camera cannot be used. Be sure to format the card with this camera.
- The built-in memory cannot be formatted except when an error occurs.

1 **Press the MENU button in ▶ mode.**

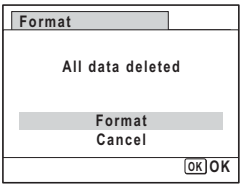
The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

2 **Use the four-way controller (▲▼) to select [Format].**

3 **Press the four-way controller (▶).**

The [Format] screen appears.

4 **Press the four-way controller (▲) to select [Format].**



5 **Press the OK button.**

Formatting starts.
When formatting is completed, the camera returns to 📷 mode or ▶ mode.

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Changing the Sound Settings

You can adjust the volume of operation sounds and change the type of sound.

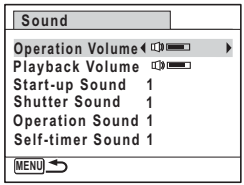
1 Press the MENU button in ▶ mode.

The [🔧 Setting] menu appears.
When you press the MENU button in 📷 mode, press the four-way controller (▶) once.

2 Use the four-way controller (▲▼) to select [Sound].

3 Press the four-way controller (▶).

The [Sound] screen appears.



To Change the Operation Volume/Playback Volume

4 Use the four-way controller (▲▼) to select [Operation Volume].

5 Use the four-way controller (◀▶) to adjust the volume.

Set the volume to 🔕 to mute the start-up sound, shutter sound, operation sound, and self-timer sound.

6 Change [Playback Volume] in the same way as in Steps 4 and 5.

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To Change the Sound Type

4 **Use the four-way controller (▲▼) to select [Start-up Sound].**

5 **Press the four-way controller (▶).**
A pull-down menu appears.

6 **Use the four-way controller (▲▼) to select the sound type.**
Choose from [1], [2], [3] or [Off].

7 **Press the OK button.**

8 **Set [Shutter Sound], [Operation Sound] and [Self-timer Sound] in the same way as in Steps 4 to 7.**

9 **Press the MENU button twice.**
The camera returns to 📷 mode or ▶ mode.

Changing the Date and Time

You can change the initial date and time settings (p.47). You can also set the format in which the date appears on the camera.

1 **Press the MENU button in ▶ mode.**
The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

2 **Use the four-way controller (▲▼) to select [Date Adjustment].**

3 **Press the four-way controller (▶).**
The [Date Adjustment] screen appears.

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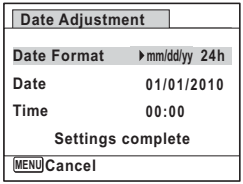
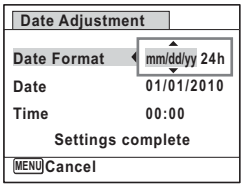
4 **Press the four-way controller (▶).**

The frame moves to [mm/dd/yy].
Depending on the initial setting or previous setting, [dd/mm/yy] or [yy/mm/dd] may be displayed.



5 **Use the four-way controller (▲▼) to choose the date format.**

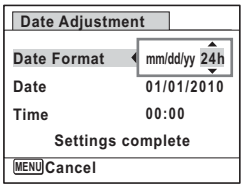
Choose from [mm/dd/yy], [dd/mm/yy] or [yy/mm/dd].



6 **Press the four-way controller (▶).**

The frame moves to [24h].

7 **Use the four-way controller (▲▼) to select [24h] (24-hour display) or [12h] (12-hour display).**



8 **Press the four-way controller (▶).**

The frame returns to [Date Format].

9 **Press the four-way controller (▼).**

The frame moves to [Date].

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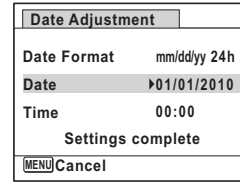
10 Press the four-way controller (▶).

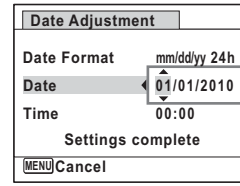


The frame moves to one of the following items depending on the date format set in Step 5.

Month for [mm/dd/yy]
Day for [dd/mm/yy]
Year for [yy/mm/dd]

The following operations and screen use [mm/dd/yy] as an example. The operations are the same even if another date format has been selected.

11 Use the four-way controller (▲▼) to change the month.



12 Press the four-way controller (▶).

The frame moves to the day field. Use the four-way controller (▲▼) to change the day. After changing the day, change the year in the same manner.

13 Change the time in the same way as in Steps 8 to 12.

If you selected [12h] in Step 7, the setting switches between am and pm corresponding to the time.

14 Press the four-way controller (▼) to select [Settings complete].

15 Press the OK button.

The date and time settings are saved.

memo When you press the **OK** button in Step 15, the camera clock is reset to 00 seconds. To set the exact time, press the **OK** button when the time signal (on the TV, radio, etc.) reaches 00 seconds.

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Setting the World Time

The date and time selected in “Setting the Date and Time” (p.47) and “Changing the Date and Time” (p.202) serve as the Hometown date and time. If you set the Destination city using the world time function, you can display the Destination date and time when taking pictures in a different time zone.

To Set the Destination

1 **Press the MENU button in ▶ mode.**

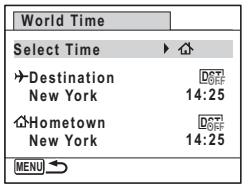
The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

2 **Use the four-way controller (▲▼) to select [World Time].**

3 **Press the four-way controller (▶).**

The [World Time] screen appears.

4 **Use the four-way controller (▲▼) to select [✈ Destination].**



5 **Press the four-way controller (▶).**

The [✈ Destination] screen appears. The city that is currently selected blinks on the map.

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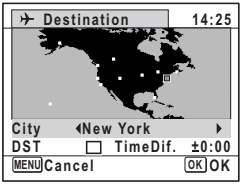
6 **Use the four-way controller (◀▶) to change the Destination city.**

The current time, location and time difference of the selected city appear.



7 **Use the four-way controller (▲▼) to select [DST].**

8 **Use the four-way controller (◀▶) to select ☑ or □.**

Select ☑ if the Destination city uses daylight saving time.

9 **Press the OK button.**

The settings are saved and the [World Time] screen reappears.

10 **Press the MENU button twice.**

The camera returns to capture status with the current setting.

memo Select [⌂ Hometown] in Step 4 to set the city and DST setting for the Hometown city.

To Display the Time of the Destination (Select Time)

1 **Press the MENU button in ▶ mode.**

The [🔧 Setting] menu appears.
When you press the MENU button in 📷 mode, press the four-way controller (▶) once.

2 **Use the four-way controller (▲▼) to select [World Time].**

3 **Press the four-way controller (▶).**

The [World Time] screen appears.

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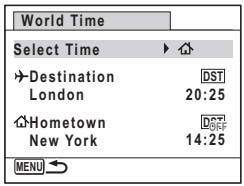
4 **Use the four-way controller (▲▼) to select [Select Time].**

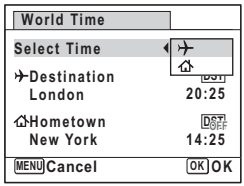


5 **Press the four-way controller (▶).**

A pull-down menu appears.

6 **Use the four-way controller (▲▼) to select ✈ or ⌂.**

- ✈ Displays the time of the Destination city
- ⌂ Displays the time of the Hometown city



7 **Press the OK button.**

The setting is saved.

8 **Press the MENU button twice.**

The camera returns to 📷 mode or ▶ mode.

When ✈ (Destination) is selected in Step 6, the ✈ icon appears on the display to indicate that the destination date and time are displayed in 📷 mode.

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Changing the Display Language

You can change the language in which the menus, error messages, etc. are displayed.
The camera supports the following languages: English, French, German, Spanish, Portuguese, Italian, Dutch, Japanese, Danish, Swedish, Finnish, Polish, Czech, Hungarian, Turkish, Greek, Russian, Thai, Korean, Traditional Chinese and Simplified Chinese.

1 **Press the MENU button in ▶ mode.**

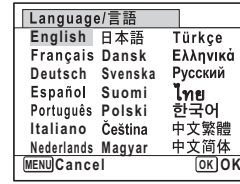
The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

2 **Use the four-way controller (▲▼) to select [Language/言語].**

3 **Press the four-way controller (▶).**

The [Language/言語] screen appears.

4 **Use the four-way controller (▲▼◀▶) to select a language.**



5 **Press the OK button.**

The menus and messages are displayed in the selected language.

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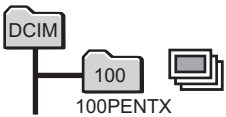
Changing the Naming System of the Folder

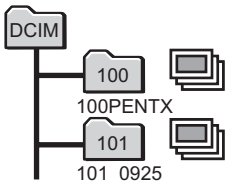
You can change the naming system of the folder for storing images. When the naming system is set to the date, pictures are saved in separate folders by the date they were taken.

Date (Default setting)	xxx_mmdd (3-digit folder number_month day) * xxx_ddmm (3-digit folder number_day month) when [Date Format] is set to [dd/mm/yy]
PENTX	xxxPENTX (where xxx is the 3-digit folder number)

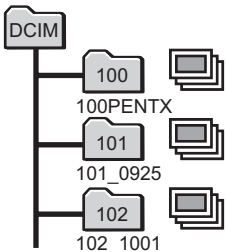
Taken with the folder name setting [PENTX]. (e.g. September 25)



Taken with the folder name setting [Date]. (e.g. September 25)



Next time, taken with the folder name setting [Date] again. (e.g. October 1)



- Up to 900 folders can be created.
- Up to 9999 images or sounds can be saved in a folder.

1 Press the MENU button in ▶ mode.

The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

2 Use the four-way controller (▲▼) to select [Folder Name].

3 Press the four-way controller (▶).

A pull-down menu appears.

4 Use the four-way controller (▲▼) to select [Date] or [PENTX].

5 Press the OK button.

The setting is saved.

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Adjusting the Brightness of the Display

You can adjust the brightness of the display.

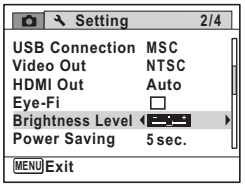
1 **Press the MENU button in ▶ mode.**

The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

2 **Use the four-way controller (▲▼) to select [Brightness Level].**

3 **Use the four-way controller (◀▶) to adjust the brightness.**

− · + Dark
− · + Normal
− · + Bright



4 **Press the MENU button.**

The camera returns to 📷 mode or ▶ mode.
The display appears with the set brightness.

Using the Power Saving Function

You can save battery power by setting the display to dim automatically when no operation is performed for a fixed time. After the power saving function has been activated, the display returns to the ordinary brightness by pressing any of the buttons.

1 **Press the MENU button in ▶ mode.**

The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

2 **Use the four-way controller (▲▼) to select [Power Saving].**

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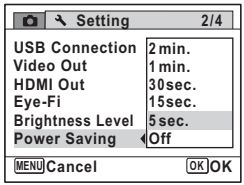
3 Press the four-way controller (▶).

A pull-down menu appears.

4 Use the four-way controller (▲▼) to select the time until the camera enters power saving mode.

Choose from [2min.], [1min.], [30sec.], [15sec.], [5sec.] (default setting) or [Off].



5 Press the OK button.

The setting is saved.

memo

- Power Saving does not function in the following situations:
  - while taking pictures in continuous shooting mode
  - in the playback mode
  - during movie recording/playback
  - while the camera is connected to a computer
  - while a menu is being displayed
  - while the camera is connected to an AV device
  - when switching to the viewfinder using the EVF/LCD button
- When no operation is performed after the camera is turned on, the Power Saving function is activated only after 15 seconds elapse even if [5sec.] is set.

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Setting the Auto Power Off Function

You can set the camera to turn off automatically when no operation is performed for a fixed time.

1 Press the MENU button in ▶ mode.

The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

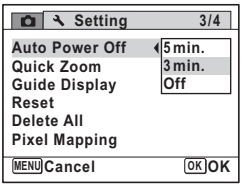
2 Use the four-way controller (▲▼) to select [Auto Power Off].

3 Press the four-way controller (▶).

A pull-down menu appears.

4 Use the four-way controller (▲▼) to select the time until the camera turns off automatically.

Choose from [5min.], [3min.] (default setting) or [Off].



5 Press the OK button.

The setting is saved.

memo

Auto Power Off does not function in the following situations:
- while taking pictures in the continuous shooting mode
- while recording a movie
- during a slideshow or movie/sound playback
- while the camera is connected to a computer
- while transferring images via Eye-Fi card

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Setting the Quick Zoom Function

You can set whether to use [Quick Zoom] to magnify playback images to the maximum of 10x by simply turning the e-dial to the right (🔍) during playback of images in ▶ mode.

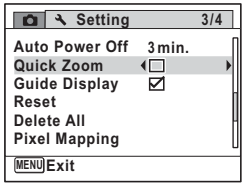
1 Press the MENU button in ▶ mode.

The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

2 Use the four-way controller (▲▼) to select [Quick Zoom].

3 Use the four-way controller (◀▶) to select ☑ or □.

- ☑ The Quick Zoom is available.
- □ The Quick Zoom is not available. (Default setting)



4 Press the MENU button.

The camera returns to 📷 mode or ▶ mode.

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Setting the Guide Display

Set whether to display the guides in Capture Mode Palette and Playback Mode Palette or when setting the capture mode.

1 **Press the MENU button in ▶ mode.**

The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

2 **Use the four-way controller (▲▼) to select [Guide Display].**

3 **Use the four-way controller (◀▶) to select ☑ or □.**

☑ The mode guides are displayed. (Default setting)
□ The mode guides are not displayed.

4 **Press the MENU button.**

The camera returns to 📷 mode or ▶ mode.

Changing the Start-up Screen

You can choose the start-up screen displayed when the camera is turned on.
You can choose any of the following images as the start-up screen:

- The Guide Display Start-up Screen showing a guide to the shooting modes and buttons
- One of the three pre-installed images
- One of your own images (compatible images only)

1 **In ▶ mode, press the four-way controller (▼).**

The Playback Mode Palette appears.

2 **Use the four-way controller (▲▼◀▶) to select ■ (Start-up Screen).**

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3 Press the OK button.

The image selection screen appears.

4 Use the four-way controller (◄►) to choose the image for the start-up screen.

Only images available for the start-up screen are displayed. You can also choose one of the three pre-installed images or the Guide Display Start-up Screen already stored in the camera.

5 Press the OK button.

The setting is saved.

memo

- Once the start-up screen has been set, it will not be deleted even if the original image is deleted or the SD Memory Card is formatted.
- Select [Off] to hide the start-up screen.
- The start-up screen is not displayed when you turn the camera on in the playback mode.
- Movies or images taken with the recorded pixels of 10.7M (4000×2672)/ 9M (4000×2256)/ 9M (2992×2992) and the ▮▮▮ (Digital Panorama) mode cannot be used for the start-up screen.

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Correcting Defective Pixels in the CCD Sensor (Pixel Mapping)

Pixel Mapping is a function for mapping out and correcting defective pixels in the CCD sensor. Run the Pixel Mapping function if image dots always seem to be defective in the same place.

1 **Press the MENU button in mode, and press the four-way controller (▶).**

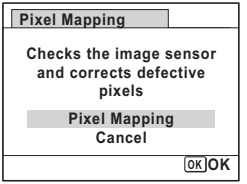
The [Setting] menu appears.
[Pixel Mapping] cannot be selected when the MENU button is pressed in mode.

2 **Use the four-way controller (▲▼) to select [Pixel Mapping].**

3 **Press the four-way controller (▶)**

The [Pixel Mapping] screen appears.

4 **Press the four-way controller (▲) to select [Pixel Mapping].**



5 **Press the OK button.**

Defective pixels are mapped and corrected.

Caution

When the battery level is low, [Not enough battery power remaining to activate Pixel Mapping] is displayed on the monitor. Use the AC adapter kit K-AC106 (optional) or load a fully charged battery.

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Resetting to Default Settings (Reset)

You can reset the camera settings to their defaults. Refer to “Default Settings” (p.247) for the reset settings.

1 **Press the MENU button in ▶ mode.**

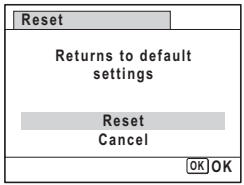
The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

2 **Use the four-way controller (▲▼) to select [Reset].**

3 **Press the four-way controller (▶).**

The [Reset] screen appears.

4 **Press the four-way controller (▲) to select [Reset].**



5 **Press the OK button.**

The settings return to the defaults.

memo

The following settings are not affected by resetting:
- Date Adjustment
- World Time
- Language/言語
- Video Out

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Memo

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8 Viewing Images on a Computer

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Setting Up Your Computer

By installing the software included on the provided CD-ROM on your computer and connecting the camera to your computer with the USB cable, you can transfer images and movies captured with your camera to the computer and then display and manage them. This section explains how to install the provided software and the other necessary preparations for enjoying the captured pictures and movies on your computer.

Provided Software

The following software is included on the provided CD-ROM (S-SW104).

Image viewing/managing/editing software "MediaImpression 2.0 for PENTAX"

Supported languages: English, French, German, Spanish, Portuguese, Italian, Dutch, Swedish, Russian, Korean, Traditional Chinese and Simplified Chinese, Japanese

Caution

It is recommended to use the optional AC adapter kit K-AC106 when the camera is connected to a computer (p.35). If the battery runs out of power while images are being transmitted to the computer, the image data may be lost or damaged.

System Requirements

The following system requirements must be met for you to fully enjoy the images and movies captured with the camera on your computer.

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Windows

OS	Windows XP, Windows Vista or Windows 7 • The OS must be preinstalled and updated to the latest version.
CPU	Pentium 4 1.6 GHz or equivalent AMD Athlon (Intel Core 2 Duo 2.0 GHz or equivalent AMD Athlon X2 processor recommended)
Memory	512 MB minimum (1 GB or more recommended)
Hard Disk Space	300 MB minimum
Others	CD-ROM drive USB port as standard equipment 1024 × 768 pixels, 16-bit color monitor or greater

* Operation is not guaranteed on all computers meeting the system requirements.
* The system requirements describe the minimum environment for playing and editing movies.

Caution Windows 95, Windows 98, Windows 98SE, Windows Me, Windows NT and Windows 2000 are not supported.

Macintosh

OS	Mac OS X (Ver.10.3, 10.4, 10.5, 10.6) • The OS must be preinstalled and updated to the latest version.
CPU	PowerPC G4 800 MHz processor or equivalent CPU (Power PC G5 or Intel Core Duo processor recommended)
Memory	512 MB minimum (1 GB or more recommended)
Hard Disk Space	300 MB minimum
Others	CD-ROM drive USB port as standard equipment 1024 × 768 pixels, 16-bit color monitor or greater

* Operation is not guaranteed on all computers meeting the system requirements.
* The system requirements describe the minimum environment for playing and editing movies.

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Installing the Software

Install the image viewing/managing/editing software “MediaImpression 2.0 for PENTAX”.

Caution

- Make sure your computer meets the system requirements before installing the software.
- When multiple accounts have been set up in your computer, log on with an account that has administrative rights before installing the software.

Windows

1 **Turn your Windows PC on.**

2 **Insert the provided CD-ROM into the CD-ROM/DVD drive.**

If the installation screen appears, go to Step 5.

3 **Click [Computer] in the Start menu.**

4 **Double-click the CD-ROM/DVD drive (S-SW104) icon.**

The installation screen appears.

5 **Click [MediaImpression 2.0 for PENTAX], choose a language in the “Choose Setup Language” screen and click [OK].**

The setup screen appears. Follow the on-screen guidance and install the software.

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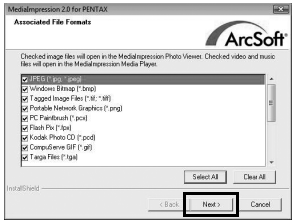
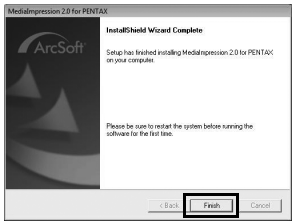
6 **Select the file format to use and click [Next].**

All files in the checked format will open with MediaImpression 2.0 for PENTAX. Remove the check mark(s) to open the file using another application.



7 **Click [Finish].**

Installation is complete.
Reboot your computer.


MediaImpression 2.0 for PENTAX
ArcSoft
InstallShield Wizard Complete
Setup has finished installing MediaImpression 2.0 for PENTAX on your computer.
Please be sure to restart the system before running the software for the first time.
< Back
Finish
Cancel

Macintosh

1 **Turn your Macintosh on.**

2 **Insert the provided CD-ROM into the CD-ROM/DVD drive.**

3 **Double-click the CD-ROM (S-SW104) icon.**

4 **Double-click the [PENTAX Software Installer] icon.**

The installation screen appears.

5 **Click [MediaImpression 2.0 for PENTAX].**

The setup screen appears. Follow the on-screen guidance and install the software.

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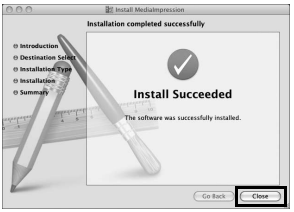
6 Click [Close].

Installation is complete.

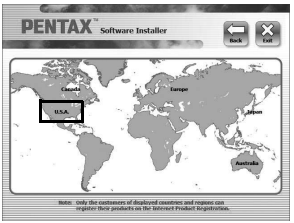


7 Click [Exit] on the installation screen.

The window is closed.

Product Registration on the Internet

In order to better serve you, we request that you complete the product registration.



If your computer is connected to the Internet, please click [Product Registration] on the installation screen. The world map screen shown on the right for Internet Product Registration is displayed. Click the displayed country or region and then follow the instructions to register your product.
Only customers in countries and regions displayed on the software installation screen can register their products on the Internet Product Registration.

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Setting the USB Connection Mode

Set the device to which the camera is connected with the USB cable.

Caution

Make sure to set the USB Connection mode before connecting your camera to the computer. You cannot perform the following setting if the camera is connected to your computer with the USB cable.

1 **Turn your camera on.**

2 **Press the MENU button in ▶ mode.**

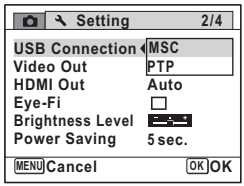
The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

3 **Use the four-way controller (▲▼) to select [USB Connection].**

4 **Press the four-way controller (▶).**

A pull-down menu appears.

5 **Use the four-way controller (▲▼) to select [MSC].**



6 **Press the OK button.**

The setting is saved.

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MSC and PTP

MSC (Mass Storage Class)
A general-purpose driver program that handles devices connected to the computer via USB as a memory device. Also indicates a standard for controlling USB devices with this driver.
By simply connecting a device that supports USB Mass Storage Class, you can copy, read, and write files from a computer without installing a dedicated driver.

PTP (Picture Transfer Protocol)
A protocol that allows transfer of digital images and control of digital cameras via USB, standardized as ISO 15740.
You can transfer image data between devices that support PTP without installing a device driver.

Unless otherwise specified, select MSC when connecting the X90 to your computer.

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Connecting the Camera and Your Computer

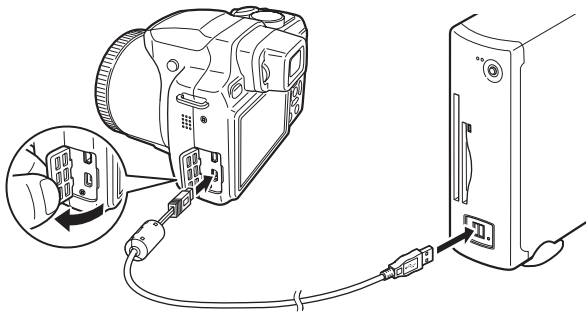
Connect your camera to the computer using the provided USB cable (I-USB7).

1 Turn your computer on.

2 Turn your camera off.

3 Connect your camera to the computer using the USB cable.

Connect the terminal of the USB cable with ⇦ pointing toward the ◄ on the PC/AV terminal of the camera.



4 Turn your camera on.

For Windows, the “AutoPlay” screen appears on the computer.
If the “AutoPlay” screen does not appear, follow the steps in “When the [AutoPlay] screen does not appear” (p.228).
For Macintosh, the camera is recognized as [NO NAME] on the desktop.

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- The power switch blinks while the camera is connected to a computer.
- For Macintosh, the volume label name appears instead of [NO NAME] if the SD Memory Card has a volume label. A new unformatted SD Memory Card may show the manufacturer's name or model number.

Caution

It is recommended to use the optional AC adapter kit K-AC106 when the camera is connected to a computer (p.35). If the battery runs out of power while images are being transmitted to a computer, the data may be lost or damaged.

When the [AutoPlay] screen does not appear

1 Double-click the [MediaImpression 2.0 for PENTAX] icon on the desktop.

MediaImpression 2.0 for PENTAX starts and the Start page appears.

2 Click [Import].

The import screen appears. For subsequent steps, go to Step 6 on p.229.

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Transferring Images

Import the images captured with the camera into your computer.

- If there is no SD Memory Card in the camera, the images stored in the built-in memory will be transferred to your computer.
- If you are using a Macintosh, go to p.230.

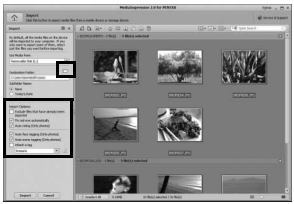
Windows

5 **Click [Import media files to local disk].**

MediaImpression 2.0 for PENTAX starts and the import screen appears.

6 **Select an image to import.**

To select multiple images, choose the images while pressing the Ctrl key.
To specify the destination location, click the folder icon.
If any of the “Import Options” are checked, marks will appear on the images that were imported.



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7 Click [Import].

The images are imported to the computer and the Media Browser screen appears.
When a message appears after import is complete, click [Done].

memo

- If the images from the camera are not displayed in the import screen, select [Removable Disk] in [Get Media from].
- If the SD Memory Card has a volume label, the volume label name appears instead of [Removable Disk]. The manufacturer's name or model number may appear for a new unformatted SD Memory Card.

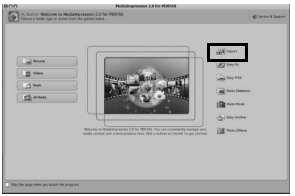
Macintosh

5 Double-click the [MediaImpression 2.0 for PENTAX] icon in the [Applications] folder.

MediaImpression 2.0 for PENTAX starts and the Start page appears.

6 Click [Import].

The import screen appears. For subsequent steps, refer to Step 6 and 7 on p.229.



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If the images from the camera are not displayed in the import screen, select [NO NAME] (or the volume label name) in [Get Media from].

Disconnecting the Camera from Your Computer

Windows

1 **Double-click the [Safely Remove Hardware] icon in the task bar.**

The “Safely Remove Hardware” screen appears.

2 **Select [USB Mass Storage Device] and click [Stop].**

The “Stop a Hardware device” screen appears.

Safely Remove Hardware
Select the device you want to unplug or eject, and then click Stop. When Windows notifies you that it is safe to do so unplug the device from your computer.
USB Mass Storage Device
USB Mass Storage Device at Port_#
Properties
Stop
Display device components
Close

3 **Select [USB Mass Storage Device] and click [OK].**

A message appears indicating that the hardware can be safely removed.

Stop a Hardware device
Confirm devices to be stopped, Choose OK to continue.
Windows will attempt to stop the following devices. After the devices are stopped they may be removed safely.
USB Mass Storage Device
PENTAX USB Device
OK
Cancel

4 **Disconnect the USB cable from your Windows PC and the camera.**

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Macintosh

1 Drag [NO NAME] on the desktop to the trash.

If the SD Memory Card has a volume label, drag the icon of that name to the trash.

2 Disconnect the USB cable from your Macintosh and the camera.

- If the camera (removable disk) is being used by an application such as “MediaImpression 2.0 for PENTAX”, the camera cannot be disconnected until the application is closed.
- The camera will automatically switch to the playback mode when the USB cable is disconnected from your computer or the camera.

Starting “MediaImpression 2.0 for PENTAX”

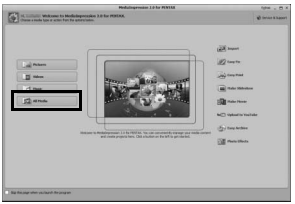
“MediaImpression 2.0 for PENTAX” lets you view, edit, manage, search for, share, and print images.

1 Double-click the [MediaImpression 2.0 for PENTAX] icon on the desktop (for Windows) or in the [Applications] folder (for Macintosh).

MediaImpression 2.0 for PENTAX starts and the Start page appears.

2 Click [All Media].

The Media Browser screen appears.



* The screen shown is for a Windows PC. Items shown will differ depending on the operating system and settings.

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3 Select and click the folder containing the images you wish to view.

The images are displayed.

4 Select and double-click an image you wish to view.

The selected image is displayed with MediaImpression Photo Viewer.
You can enlarge/reduce the display size of the image or edit the image.
You can also play back movies or sounds.

Details on How to Use “MediaImpression 2.0 for PENTAX”

You can find more information on how to use “MediaImpression 2.0 for PENTAX” by using the help pages.

1 Select [Help] in [Extras] at the top right of the screen (for Windows) or [MediaImpression Help] in [Help] on the menu bar (for Macintosh).

The help screen appears in the web browser.

2 Click the desired topic.

The explanation is displayed.

MediaImpression 2.0 for PENTAX
Introduction to MediaImpression
Welcome to MediaImpression 2.0 for PENTAX, a desktop software program that combines powerful media management and playback capabilities with tools for viewing, enhancing, sharing, printing, archiving and having fun with your media files.
Although the program is designed to be easy-to-use, referring to this Help file is an excellent way to get better acquainted with the program.
Start Page
Media Browser
Views
Monthly History
Calendars
Favorite Folders
Folders
Import History
Rating
Saved Selection Criteria
Tags
Preview Area
Display Area
Toolbar

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Using a Wireless LAN

You can transfer images via wireless LAN by using an SD Memory Card with a built-in wireless LAN (Eye-Fi card).

Precautions When Using the Eye-Fi Card

- Eye-Fi cards that can be used with this camera are Eye-Fi Share and Eye-Fi Share Video.
- If an outdated version of the Eye-Fi card is inserted into the camera, an error message will appear.
- When using an Eye-Fi card for the first time, install the Eye-Fi Manager software from the card to your computer before formatting the card.
- Use of an access point and an Internet connection are required for transferring images via wireless LAN. For details, refer to the Eye-Fi website. (http://www.eye.fi)
- Use Eye-Fi cards which have been updated to the newest firmware.
- Set [Eye-Fi] to □ (Off), or do not use an Eye-Fi card in a location where the use of wireless LAN devices is restricted or prohibited, such as airplanes.
- Eye-Fi cards can be used only in the country in which the card was purchased. Please observe all local laws governing Eye-Fi card usage.
- This camera features a function to enable/disable the communication function of the Eye-Fi card, however, we do not guarantee the operability of all Eye-Fi card functions.
- Refer to the Eye-Fi card manual for details on how to use the card.
- Please contact the Eye-Fi card manufacturer regarding any malfunctions or problems concerning Eye-Fi cards.

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Setting Up an Eye-Fi Card

Start transferring images from the Eye-Fi card.
In 📷 mode or ▶ mode (single-image display), images will be automatically transferred when no operation is performed for 5 seconds or more.

Caution

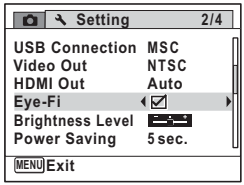
- If the following setting is made, images that have not been transferred will be transferred automatically. Images will also be transferred when images are taken, new images are saved, or images are overwritten. Be sure to confirm the images before making following setting.
- [Eye-Fi] is set to □ (Off) by default. Even if it is set to ☑ (On), it will be reset to □ when the camera is turned off.
- Images will not be transferred in the following situations:
  - when an available wireless LAN access point cannot be found
  - when the battery level is low (the battery level indicator is (yellow) or (red))
- When transferring large data files such as a large movie file, the internal temperature of the camera may become high and may cause the camera to turn off automatically for the sake of circuit protection.
- Auto Power Off does not function when images are being transferred.
- Transferring a large number of images may take some time. It is recommended to use the optional AC adapter kit (K-AC106).

1 Press the MENU button in ▶ mode.

The [🔧 Setting] menu appears.
When you press the **MENU** button in 📷 mode, press the four-way controller (▶) once.

2 Use the four-way controller (▲▼) to select [Eye-Fi].

3 Use the four-way controller (◀▶) to change the setting to ☑.



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4 Press the MENU button.

Wireless LAN communication is activated for the Eye-Fi card and image transfer starts. **Eye-Fi** will appear on the display.

Eye-Fi ▪))	Communicating data When [Eye-Fi] is set to ☑ and the camera is connected to an access point or is searching for an access point
Eye-Fi ●▪▪	Waiting for communication When [Eye-Fi] is set to ☑ and is not connected to an access point
Eye-Fi ⊗	Eye-Fi communication is not allowed When [Eye-Fi] is set to □
Eye-Fi ⚠	Version is outdated When the version of the Eye-Fi card is out of date or the card is write-protected

memo Image transfer will be canceled if any camera operation is performed, while images are being transferred.

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9 Appendix

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Functions Available for Each Shooting Mode

Function		Shooting Mode	AUTO PICT							
Zoom lever	Zoom		✓*1	✓	✓	✓*2	✓*3	✓	✓	✓	✓
[☺] button	Face Detection On/Smile Capture		✓	✓	✓	✓	✓	✓	✓	✓
	Face Detection Off		×	✓	✓	✓	✓	✓	×	✓
Flash Mode	(Auto)		✓	✓	✓	✓	✓	✓	✓	✓
	(Flash Off)		✓	✓	✓	✓	✓	✓	✓	✓
	(Flash On)		✓	✓	✓	×	✓	✓	✓	✓
	(Auto + Red-eye)		✓	✓	✓	×	✓	✓	✓	✓
	(Flash On + Red-eye)		✓	✓	✓	×	✓	✓	✓	✓
	(Slow-speed Sync)/ (Slow-speed Sync+Red-eye)		✓	✓	✓	×	✓	✓	✓	✓
Drive Mode	(Standard)		✓	✓	✓	✓	✓	✓	✓	✓
	(Continuous Shooting)		✓	✓	✓	×	✓	✓	✓	✓
	(Burst Shooting L/M/H)		✓	✓	✓	×	✓	✓	✓	✓
	(Self-timer)/ (2 sec. Self-timer)		✓	✓	✓	✓	✓	✓	✓	✓
	(Interval Shoot)		✓	✓	✓	×	✓	✓	✓	✓
	(Auto Bracket)		✓	✓	✓	×	✓	✓	✓	✓
Focus Mode	AF (Standard)/ (Macro)		✓	✓	✓	✓	✓	✓	✓	✓
	(1cm Macro)		✓	✓	✓	×	✓	✓	✓	✓
	(Infinity)		✓	✓	✓	×	✓	✓	✓	✓
	MF (Manual Focus)		✓	✓	✓	×	✓	✓	✓	✓
	(AF Area Selection)		×	✓	✓	×	✓	✓	✓	✓
[Rec. Mode] menu	Image Tone		×*4	×*4	✓	×*5	×*4	×*4	×*4	×*4
	Recorded Pixels		✓	✓	×*6	×*7	✓	✓	✓	✓
	Quality Level		✓	✓	✓	×*10	✓	✓	✓	✓
	White Balance		×*11	×*11	✓	×*11	×*11	×*11	×*11	×*11
	Sensitivity		✓	✓	×*12	×*12	✓	✓	✓	✓
	ISO Corction in AUTO		✓	✓	×*13	×	✓	✓	✓	✓
	AF Setting	Focusing Area	×*14	✓	✓	×*14	✓	✓	✓	✓
		Auto Macro	✓	✓	✓	×*15	✓	✓	✓	✓
		Focus Assist	✓	✓	✓	×*15	✓	✓	✓	✓
	AE Metering		×*16	×*16	✓	×*16	×*16	×*16	×*16	×*16
	EV Compensation		×*17	✓	✓	×*17	✓	✓	✓	✓
	Flash Exposure Compensation		✓	✓	✓	×*17	✓	✓	✓	✓
	D-Range Setting		✓	✓	✓	×*18	✓	✓	✓	✓
	Shake Reduction		✓	✓	✓	×*15	✓	✓	✓	✓
	Blink Detection		✓	✓	✓	×*15	✓	✓	✓	✓
	Sharpness/Saturation (Tone Adjustment)/Contrast		×*19	×*19	✓	×*19	×*19	×*19	×*19	×*19
	Date Imprint		✓	✓	✓	×	✓	✓	✓	✓

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✓: Can be set. ×: Cannot be set.

Shooting Mode / Function								
Zoom	✓	✓	✓	✓	✓	✓	✓	Zoom lever
Face Detection On/Smile Capture	✓	✓	✓	✓	✓	✓	✓	button
Face Detection Off	×	✓	×	✓	✓	×	×	button
(Auto)	✓	×	✓	×	✓	✓	✓	Flash Mode
(Flash Off)	✓	✓	✓	✓	✓	✓	✓	Flash Mode
(Flash On)	✓	×	✓	×	✓	✓	✓	Flash Mode
(Auto + Red-eye)	✓	×	✓	×	✓	✓	✓	Flash Mode
(Flash On + Red-eye)	✓	×	✓	×	✓	✓	✓	Flash Mode
(Slow-speed Sync)/ (Slow-speed Sync+Red-eye)	✓	✓	✓	×	✓	✓	✓	Flash Mode
(Standard)	✓	✓	✓	✓	✓	✓	✓	Drive Mode
(Continuous Shooting)	✓	✓	✓	✓	✓	✓	✓	Drive Mode
(Burst Shooting L/M/H)	✓	✓	✓	✓	✓	✓	✓	Drive Mode
(Self-timer)/ (2 sec. Self-timer)	✓	✓	✓	✓	✓	✓	✓	Drive Mode
(Interval Shoot)	✓	✓	✓	✓	✓	✓	✓	Drive Mode
(Auto Bracket)	✓	✓	✓	✓	✓	✓	✓	Drive Mode
AF (Standard)/ (Macro)	✓	✓	✓	✓	✓	✓	✓	Focus Mode
(1cm Macro)	✓	✓	✓	✓	✓	✓	✓	Focus Mode
(Infinity)	✓	✓	✓	✓	✓	✓	✓	Focus Mode
MF (Manual Focus)	✓	✓	✓	✓	✓	✓	✓	Focus Mode
(AF Area Selection)	✓	✓	✓	✓	✓	✓	✓	Focus Mode
Image Tone	×*4	✓	×*4	×*4	×*4	×*4	×*4	[Rec. Mode] menu
Recorded Pixels	×*8	✓	✓	×*9	✓	✓	✓	[Rec. Mode] menu
Quality Level	✓	✓	✓	✓	✓	✓	✓	[Rec. Mode] menu
White Balance	×*11	✓	×*11	×*11	×*11	×*11	×*11	[Rec. Mode] menu
Sensitivity	✓	✓	✓	✓	✓	✓	✓	[Rec. Mode] menu
ISO Corction in AUTO	✓	✓	✓	✓	✓	✓	✓	[Rec. Mode] menu
Focusing Area (AF Setting)	✓	✓	✓	✓	✓	✓	✓	[Rec. Mode] menu
Auto Macro (AF Setting)	✓	✓	✓	✓	✓	✓	✓	[Rec. Mode] menu
Focus Assist (AF Setting)	✓	✓	✓	✓	✓	✓	✓	[Rec. Mode] menu
AE Metering	×*16	✓	×*16	×*16	×*16	×*16	×*16	[Rec. Mode] menu
EV Compensation	✓	✓	✓	✓	✓	✓	✓	[Rec. Mode] menu
Flash Exposure Compensation	✓	✓	✓	✓	✓	✓	✓	[Rec. Mode] menu
D-Range Setting	✓	✓	✓	✓	✓	✓	✓	[Rec. Mode] menu
Shake Reduction	✓	✓	✓	✓	✓	✓	✓	[Rec. Mode] menu
Blink Detection	✓	✓	✓	✓	✓	✓	✓	[Rec. Mode] menu
Sharpness/Saturation (Tone Adjustment)/Contrast	×*19	✓	×*19	×*19	×*19	×*19	×*19	[Rec. Mode] menu
Date Imprint	✓	✓	✓	✓	✓	✓	✓	[Rec. Mode] menu

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Function	Shooting Mode							
Zoom lever	Zoom	✓	✓	✓	✓	✓	✓	✓
Face Detection button	Face Detection On/Smile Capture	✓	✓	✓	✓	✓	✓	✓
	Face Detection Off	✓	✓	✓	✓	✓	✓	✓
Flash Mode	(Auto)	✓	✓	×	✓	✓	✓	✓
	(Flash Off)	✓	✓	✓	✓	✓	✓	✓
	(Flash On)	✓	✓	×	✓	✓	✓	✓
	(Auto + Red-eye)	✓	✓	×	✓	✓	✓	✓
	(Flash On + Red-eye)	✓	✓	×	✓	✓	✓	✓
	(Slow-speed Sync)/ (Slow-speed Sync+Red-eye)	✓	✓	×	✓	✓	✓	✓
Drive Mode	(Standard)	✓	✓	✓	✓	✓	✓	✓
	(Continuous Shooting)	✓	✓	×	×	✓	✓	✓
	(Burst Shooting L/M/H)	✓	✓	×	×	✓	✓	✓
	(Self-timer)/ (2 sec. Self-timer)	✓	✓	✓	✓	✓	✓	✓
	(Interval Shoot)	✓	✓	✓	×	✓	✓	✓
	(Auto Bracket)	✓	✓	×	×	✓	✓	✓
Focus Mode	AF (Standard)/ (Macro)	✓	✓	×	✓	✓	✓	✓
	(1cm Macro)	✓	✓	×	✓	✓	✓	✓
	(Infinity)	✓	✓	✓	✓	✓	✓	✓
	MF (Manual Focus)	✓	✓	×	✓	✓	✓	✓
	(AF Area Selection)	✓	✓	×	✓	✓	✓	✓
[Rec. Mode] menu	Image Tone	×*4	×*4	×*4	✓	×*4	×*4	×*4
	Recorded Pixels	✓	✓	✓	×*8	✓	✓	✓
	Quality Level	✓	✓	✓	✓	✓	✓	✓
	White Balance	×*11	×*11	×*11	✓	×*11	×*11	×*11
	Sensitivity	✓	✓	×*23	✓	✓	✓	✓
	ISO Corction in AUTO	✓	✓	✓	✓	✓	✓	✓
	AF Setting — Focusing Area	✓	✓	×*14	✓*25	✓	✓	✓
	AF Setting — Auto Macro	✓	✓	✓	✓	✓	✓	✓
	AF Setting — Focus Assist	✓	✓	✓	✓	✓	✓	✓
	AE Metering	×*16	×*16	×*16	✓	×*16	×*16	×*16
	EV Compensation	✓	✓	✓	✓	✓	✓	✓
	Flash Exposure Compensation	✓	✓	✓	✓	✓	✓	✓
	D-Range Setting	✓	✓	✓	✓	✓	✓	✓
	Shake Reduction	✓	✓	✓	✓	✓	✓	✓
	Blink Detection	✓	✓	✓	✓	✓	✓	✓
	Sharpness/Saturation (Tone Adjustment)/Contrast	×*19	×*19	×*19	✓	×*19	×*19	×*19
	Date Imprint	✓	✓	✓	✓	✓	✓	✓

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WIDE		P	Tv	Av	M		Shooting Mode / Function	
×	✓	✓	✓	✓	✓	✓*3	Zoom	Zoom lever
✓	✓	✓	✓	✓	✓	✓	Face Detection On/Smile Capture	button
✓	✓	✓	✓	✓	✓	✓	Face Detection Off	
✓	✓	✓	×	×	×	×	(Auto)	Flash Mode
✓	✓	✓	✓	✓	✓	✓	(Flash Off)	
✓	✓	✓	×	✓	×	×	(Flash On)	
✓	✓	✓	×	×	×	×	(Auto + Red-eye)	
✓	✓	✓	×	✓	×	×	(Flash On + Red-eye)	
✓	✓	✓	✓	✓	✓	×	(Slow-speed Sync)/ (Slow-speed Sync+Red-eye)	
✓	✓	✓	✓	✓	✓	✓	(Standard)	Drive Mode
×	×	✓	✓	✓	✓	×	(Continuous Shooting)	
×	×	✓	✓	✓	✓	×	(Burst Shooting L/M/H)	
✓	✓	✓	✓	✓	✓	✓	(Self-timer)/ (2 sec. Self-timer)	
×	×	✓	✓	✓	✓	×	(Interval Shoot)	
×	×	✓	✓	✓	✓	×	(Auto Bracket)	
✓	✓	✓	✓	✓	✓	✓	**AF** (Standard)/ (Macro)	Focus Mode
✓	✓	✓	✓	✓	✓	✓	(1cm Macro)	
✓	✓	✓	✓	✓	✓	✓	(Infinity)	
✓	✓	✓	✓	✓	✓	✓	**MF** (Manual Focus)	
✓	✓	✓	✓	✓	✓	✓	(AF Area Selection)	
✓	✓	✓	✓	✓	✓	✓	Image Tone	[Rec. Mode] menu
×*20	×*21	✓	✓	✓	✓	✓	Recorded Pixels	
✓	✓	✓	✓	✓	✓	×*22	Quality Level	
✓	✓	✓	✓	✓	✓	✓	White Balance	
✓	✓	✓	✓	✓	✓*24	×*12	Sensitivity	
✓	✓	✓	✓	✓	✓	×	ISO Corction in AUTO	
✓	✓	✓	✓	✓	✓	✓*25	Focusing Area (AF Setting)	
✓	✓	✓	✓	✓	✓	✓	Auto Macro (AF Setting)	
✓	✓	✓	✓	✓	✓	×	Focus Assist (AF Setting)	
✓	✓	✓	✓	✓	✓	×*16	AE Metering	
✓	✓	✓	✓	✓	×	✓	EV Compensation	
✓	✓	✓	✓	✓	✓	✓	Flash Exposure Compensation	
✓	✓	✓	✓	✓	✓	✓	D-Range Setting	
✓	✓	✓	✓	✓	✓	✓*26	Shake Reduction	
×	×	✓	✓	✓	✓	×	Blink Detection	
✓	✓	✓	✓	✓	✓	✓	Sharpness/Saturation (Tone Adjustment)/Contrast	
✓	✓	✓	✓	✓	✓	×	Date Imprint	

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*1 The ✽ (Flower) mode cannot be selected when using Digital Zoom or Intelligent Zoom.
*2 Only optical zoom is available
*3 Only optical zoom and Digital Zoom are available
*4 Fixed at Natural
*5 Fixed at Bright
*6 Fixed at 5M
*7 Fixed at 12M
*8 Fixed at 3M
*9 Fixed at 2M
*10 Fixed at ★★ (Better)
*11 Fixed at **AWB**
*12 Fixed at AUTO
*13 Fixed at 80-6400
*14 Fixed at [ ] (Multiple)
*15 Fixed at ☑ (On)
*16 Fixed at ◙ (Multi-segment)
*17 Fixed at ±0.0
*18 Fixed at □ (Off)
*19 Fixed at the normal setting
*20 Fixed at 3M for the first shot, and fixed at 5M for a composite image
*21 Fixed at 2M for the first shot
*22 Fixed at ★★★ (Best)
*23 The sensitivity is fixed to the minimum value
*24 AUTO is not available
*25 ⇶ (Automatic Tracking AF) is not available
*26 Set [Movie SR] in [Movie] of the [📷 Rec. Mode] menu

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Messages

Messages such as the following may appear on the display during camera operation.

Message	Description
Battery depleted	The battery is exhausted. Charge the battery using the battery charger (p.31).
Memory card full	The SD Memory Card is full and no more images can be saved. Insert a new SD Memory Card or delete unwanted images (p.37, p.161). Change the number of recorded pixels or quality level of recorded images and try again (p.176).
Memory card error	Shooting and playback are impossible due to a problem with the SD Memory Card. You may be able to display or copy the images on the card using a computer.
The built-in memory is not formatted	The data within the built-in memory are damaged. Format the built-in memory.
Card is not formatted	The SD Memory Card you have inserted is unformatted or has been formatted on a computer or other device and is not compatible with this camera. Format the SD Memory Card in the camera (p.200).
Card is locked	The SD Memory Card is write-protected (p.39).
Compression error	This message appears when the camera fails to compress an image. Change the quality level or recorded pixels of the image and try shooting or saving it again.
No image/sound	There are no images for playback on the SD Memory Card.
Movie recording stopped	This message appears when the internal temperature of the camera has exceeded normal operating limits while recording a movie.
The camera will turn off to prevent damage from overheating	The camera turned off because it has overheated. Wait until it cools down and then turn it back on.
Deleting	This message appears while deleting an image.
Camera cannot play this image and sound	You are trying to play back an image or sound in a format not supported by this camera. You may be able to play it back on another brand of camera or on your computer.
Image folder cannot be created	The largest file number (9999) has been assigned to an image in the largest folder number (999) and no more images can be saved. Insert a new SD Memory Card or format the card (p.200).
Protected	The image you are trying to delete is protected.

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Message	Description
Data being recorded	Displayed when you switch to ▶ mode while an image is still being recorded, or when the protect setting or DPOF setting is being changed. It disappears after the image is recorded or the setting is changed.
Data being processed	Displayed when the camera takes more than five seconds to display an image due to image processing, or when the SD Memory Card or the built-in memory is being formatted.
Built-in memory full	Displayed if the built-in memory is full when saving a file.
No image to be processed	Displayed when there are no images.
This image/sound cannot be processed	Displayed for files that cannot be processed.
No card in the camera	Displayed when no SD Memory Card is inserted.
The built-in memory is not enough to copy images/sounds	Displayed when there is insufficient built-in memory to perform copying.
Cannot process correctly	Displayed when Red-eye Compensation processing fails.
Displays image/sound from built-in memory	Displayed when the camera enters the built-in memory display.
Please pop-up the flash	Press the ϟ button to enable the use of the flash.
Please confirm the lens cap is removed	Displayed when the power is turned on with the lens cap on. Turn the camera on after removing the lens cap.
Not enough battery power remaining to activate Pixel Mapping	Displayed during pixel mapping if the battery level is insufficient. Replace the battery with a fully charged one or use an optional AC adaptor kit K-AC106 (p.35).
This card isn't compatible with this camera	Displayed when the version of the Eye-Fi card is outdated and the camera is not compatible with it (p.234).
The version of this Eye-Fi card is outdated	

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Problem	Cause	Remedy
The camera will not turn on	The battery is not installed	Check if a battery is installed. If not, install a charged battery.
	The battery is installed incorrectly	Check orientation of the battery. Reinsert the battery according to the ⊕⊖ symbols in the battery compartment (p.32).
	The battery is exhausted	Charge the battery.
No image appears on the display	The camera is connected to a computer	The display is off when the camera is connected to a computer.
	The camera is connected to a TV	The display is off when the camera is connected to a TV.
	The viewfinder is selected	Press the **EVF/LCD** button.
The display is hard to see	The brightness level of the display is set too dark	Adjust the brightness level in [Brightness Level] in the [🔧 Setting] menu (p.210).
	Power Saving function is on	When the Power Saving function is activated, the display automatically darkens after a certain amount of time. Press a button to return to the normal brightness level. Select [Off] in [Power Saving] of the [🔧 Setting] menu to turn the Power Saving function off (p.210).
The shutter will not release	The flash is charging	Pictures cannot be taken while the flash is charging. Wait until charging is finished.
	There is no available space on the SD Memory Card or in the built-in memory	Insert an SD Memory Card with available space or delete unwanted images (p.37, 161).
	Recording	Wait until recording is finished.
The picture is dark when using the flash	The subject is too far away in a dark environment, such as a night scene	The picture becomes dark if the subject is too far away. Take pictures within the specified flash range.

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Problem	Cause	Remedy
The subject is not in focus	The subject is difficult to focus on with autofocus	The camera may have difficulty in focusing on such subjects as: low contrast subjects (a white wall, a blue sky, etc.), dark subjects, finely-patterned objects, rapidly-moving objects. It is also difficult to get proper focus when shooting through a window or a net. Try shooting using the focus lock (p.69), or adjust the focus manually (Manual Focus) (p.115).
	The subject is not in the focusing area	Locate the desired subject in the focus frame (focusing area) in the center of the display. If it is difficult to do so, first lock the focus on the desired subject (focus lock), and then move the camera to recompose. Or, use the ▦ (AF Area Selection) mode to take a picture with the focusing area set on the subject you wish to focus on in. (p.116).
The flash does not discharge	The flash is not popped up	Pop up the flash.
	The flash mode is set to ⊘	Set to ⚡A (Auto) or ⚡ (Flash On) (p.112).
	The drive mode is set to ▣, ▣L, ▣M, <▣H or ▣S The focus mode is set to ▲ The shooting mode is set to 🎞, ❁ or 🎥	The flash does not discharge in these modes.
The flash mode cannot be set	The flash is not popped up	Pop up the flash.

memo Very occasionally, static electricity may cause camera malfunction. In this case, remove the battery and install it again. If the camera is then working properly, normal condition is restored and you can continue using the camera.

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Default Settings

The table below lists the factory default settings.
The meaning of the indications for menu items with a default setting is explained below.

Last Memory Setting

Yes : The current setting (last memory) is saved when the camera is turned off.
No : The setting returns to the default setting when the camera is turned off.
* : The setting depends on the [Memory] setting (p.144).
— : N/A

Reset Setting

Yes : The setting returns to the default setting with the reset function (p.217).
No : The setting is saved even after reset.
— : N/A

● **[Rec. Mode] Menu Items**

Item		Default Setting	Last Memory Setting	Reset Setting	Page
Image Tone		Bright	Yes	Yes	p.120
Recorded Pixels		12M (4000×3000)	Yes	Yes	p.121
Quality Level		★★ (Better)	Yes	Yes	p.123
White Balance		**AWB** (Auto)	*	Yes	p.124
Sensitivity		AUTO	*	Yes	p.126
ISO Corction in AUTO		80-800	*	Yes	p.127
AF Setting	Focusing Area	[ ] (Multiple)	Yes	Yes	p.117
	Auto Macro	☑ (On)	Yes	Yes	p.118
	Focus Assist	☑ (On)	Yes	Yes	p.119
AE Metering		(Multi-segment metering)	*	Yes	p.128
Flash Exp. Comp.		±0.0	Yes	Yes	p.129
Movie	Recorded Pixels	1280 (1280×720/30 fps)	Yes	Yes	p.142
	Movie SR	☑ (On)	Yes	Yes	p.143

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Item		Default Setting	Last Memory Setting	Reset Setting	Page
D-Range Setting	Highlight Correction	□ (Off)	Yes	Yes	p.130
	Shadow Correction	□ (Off)	Yes	Yes	
Shake Reduction		☑ (On)	Yes	Yes	p.131
Interval Shoot	Interval	0 min. 15 sec.	Yes	Yes	p.94
	Number of Shots	2 images	Yes	Yes	
	Start Delay	0 hr. 0 min.	Yes	Yes	
Blink Detection		☑ (On)	Yes	Yes	p.132
Digital Zoom		☑ (On)	*	Yes	p.76
Instant Review		☑ (On)	Yes	Yes	p.133
Memory	Face Detection	□ (Off)	Yes	Yes	p.144
	Flash Mode	☑ (On)	Yes	Yes	
	Drive Mode	□ (Off)	Yes	Yes	
	Focus Mode	□ (Off)	Yes	Yes	
	Zoom Position	□ (Off)	Yes	Yes	
	MF Position	□ (Off)	Yes	Yes	
	White Balance	□ (Off)	Yes	Yes	
	Sensitivity	□ (Off)	Yes	Yes	
	EV Compensation	□ (Off)	Yes	Yes	
	AE Metering	□ (Off)	Yes	Yes	
	Digital Zoom	☑ (On)	Yes	Yes	
	DISPLAY	□ (Off)	Yes	Yes	
	File No.	☑ (On)	Yes	Yes	
Green Button		Green Mode	Yes	Yes	p.137
Sharpness		−▪+ (Normal)	Yes	Yes	p.134
Saturation		−▪+ (Normal)	Yes	Yes	p.134
Tone Adjustment		−▪+ (B&W)	Yes	Yes	p.134
Contrast		−▪+ (Normal)	Yes	Yes	p.135
Date Imprint		□ (Off)	Yes	Yes	p.136

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● [🔧 Setting] Menu Items

Item		Default Setting	Last Memory Setting	Reset Setting	Page
Save as USER		Cancel	Yes	Yes	p.110
Sound	Operation Volume	3	Yes	Yes	p.201
	Playback Volume	3	Yes	Yes	
	Start-up Sound	1	Yes	Yes	
	Shutter Sound	1	Yes	Yes	
	Operation Sound	1	Yes	Yes	
	Self-timer Sound	1	Yes	Yes	
Date Adjustment	Date Format (date)	According to initial setting	Yes	No	p.47 p.202
	Date Format (time)	24h	Yes	No	
	Date	01/01/2010	Yes	No	
	Time	According to initial setting	Yes	No	
World Time	Select Time	🏠 Hometown	Yes	Yes	p.205
	Destination (City)	According to initial setting	Yes	No	
	Destination (DST)	Off	Yes	No	
	Hometown (City)	According to initial setting	Yes	No	
	Hometown (DST)	Off	Yes	No	
Language/言語		According to initial setting	Yes	No	p.43 p.208
Folder Name		Date	Yes	Yes	p.209
USB Connection		MSC	Yes	Yes	p.225
Video Out		According to initial setting	Yes	No	p.171
HDMI Out		Auto	Yes	Yes	p.173
Eye-Fi		Off	No	Yes	p.235
Brightness Level		▬▪▬	Yes	Yes	p.210
Power Saving		5 sec.	Yes	Yes	p.210
Auto Power Off		3 min.	Yes	Yes	p.212
Quick Zoom		□ (Off)	Yes	Yes	p.213
Guide Display		☑ (On)	Yes	Yes	p.214
Reset		Cancel	—	—	p.217
Delete All		Cancel	—	—	p.164

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Item	Default Setting	Last Memory Setting	Reset Setting	Page
Pixel Mapping	Cancel	—	—	p.216
Format	Cancel	—	—	p.200

● Playback Mode Palette Items

Item		Default Setting	Last Memory Setting	Reset Setting	Page
Slideshow	Interval	3 sec.	Yes	Yes	p.155
	Screen Effect	Wipe	Yes	Yes	
	Sound Effect	☑ (On)	Yes	Yes	
Image Rotation		Normal	—	—	p.157
Small Face Filter		Approx. 7%	No	Yes	p.178
Digital Filter		B&W	No	—	p.180
Frame Composite		Default1	Yes	Yes	p.185
Movie Edit	Save as Still Image	—	—	—	p.188
	Divide Movies	—	—	—	
Red-eye Compensation		—	—	—	p.184
Resize	Recorded Pixels	Depending on the picture taken	—	—	p.176
	Quality Level	Depending on the picture taken	—	—	
Cropping		Depending on the picture taken	—	—	p.177
Image/Sound Copy		Built-in memory → SD Memory Card	—	—	p.190
Voice Memo		—	—	—	p.196
Protect	Single Image/ Sound	Depending on the recorded image/sound	—	—	p.166
	All Images/Sounds	Depending on the recorded image/sound	—	—	
DPOF	Single Image	Copies: 0	—	—	p.192
	All Images	Date: □ (Off)	—	—	
Image Recovery		Cancel	—	—	p.165
Start-up Screen		Off	Yes	Yes	p.214

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● Key Operation

Item		Function	Default Setting	Last Memory Setting	Reset Setting	Page
▶ button		Operation Mode	▶ Mode	—	—	—
Zoom lever		Zoom Position	Full wide-angle	*	No	p.74
Four-way controller	▲	Drive Mode	□ (Standard)	*	Yes	p.92 - p.97
	◀	Flash Mode	⚡A (Auto)	*	Yes	p.112
	▶	Focus Mode	**AF** (Standard)	*	Yes	p.114
MENU button		Menu Display	Capture mode: [📷 Rec. Mode] menu Playback mode: [🔧 Setting] menu	—	—	p.57
DISP button		Information Display	Normal	*	Yes	p.20
🙂 button		Operation Mode	Face Detection On	*	Yes	p.70
EVF/LCD button		Display switching	Monitor display	Yes	Yes	—
⬬ button		Capture Mode	Green Mode	Yes	Yes	p.72

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List of World Time Cities

City: indicates cities that can be set as either the Initial Setting (p.43) or the World Time (p.205).
Video Out Format: indicates the video output format of the city set as the initial setting.

Region	City	Video Output Format
North America	Honolulu	NTSC
	Anchorage	NTSC
	Vancouver	NTSC
	San Francisco	NTSC
	Los Angeles	NTSC
	Calgary	NTSC
	Denver	NTSC
	Chicago	NTSC
	Miami	NTSC
	Toronto	NTSC
	New York	NTSC
	Halifax	NTSC
Central and South America	Mexico City	NTSC
	Lima	NTSC
	Santiago	NTSC
	Caracas	NTSC
	Buenos Aires	PAL
	Sao Paulo	PAL
	Rio de Janeiro	NTSC
Europe	Lisbon	PAL
	Madrid	PAL
	London	PAL
	Paris	PAL
	Amsterdam	PAL
	Milan	PAL
	Rome	PAL
	Copenhagen	PAL
	Berlin	PAL
	Prague	PAL
	Stockholm	PAL
	Budapest	PAL
	Warsaw	PAL
	Athens	PAL
	Helsinki	PAL
	Moscow	PAL
Africa/ West Asia	Dakar	PAL
	Algiers	PAL
	Johannesburg	PAL

Region	City	Video Output Format
Africa/ West Asia	Istanbul	PAL
	Cairo	PAL
	Jerusalem	PAL
	Nairobi	PAL
	Jeddah	PAL
	Tehran	PAL
	Dubai	PAL
	Karachi	PAL
	Kabul	PAL
	Male	PAL
	Delhi	PAL
	Colombo	PAL
	Kathmandu	PAL
	Dacca	PAL
East Asia	Yangon	NTSC
	Bangkok	PAL
	Kuala Lumpur	PAL
	Vientiane	PAL
	Singapore	PAL
	Phnom Penh	PAL
	Ho Chi Minh	PAL
	Jakarta	PAL
	Hong Kong	PAL
	Beijing	PAL
	Shanghai	PAL
	Manila	NTSC
	Taipei	NTSC
	Seoul	NTSC
	Tokyo	NTSC
	Guam	NTSC
Oceania	Perth	PAL
	Adelaide	PAL
	Sydney	PAL
	Noumea	PAL
	Wellington	PAL
	Auckland	PAL
	Pago Pago	NTSC

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Optional Accessories

A number of dedicated accessories are available for this camera. Products marked with an asterisk (*) are the same as those supplied with the camera.

- **Power Supply**

  Rechargeable lithium-ion battery D-LI106 (*)

  Battery charger kit K-BC106 (*)
  (Battery charger D-BC106 and AC plug cord)

  AC adapter kit K-AC106
  (AC adapter D-AC64, DC coupler D-DC106, and AC plug cord)

  The battery charger and AC plug cord are only sold as a kit.

- **Cable**

  USB cable I-USB7 (*)

  AV cable I-AVC7 (*)

- **Strap**

  O-ST92 (*)

- **Camera Case**

  O-CC92

- **Lens cap (*)**

  O-LC106

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Main Specifications

Type	Fully automatic compact digital still camera with built-in zoom lens	
Number of Effective Pixels	Approx. 12.0 megapixels	
Image Sensor	1/2.33 inch CCD	
Number of Recorded Pixels	Still	12M (4000×3000), 10.7M 3:2 (4000×2672) 9M 16:9 (4000×2256), 9M 1:1 (2992×2992) 7M (3072×2304), 5M (2592×1944) 3M (2048×1536), 1024 (1024×768), 640 (640×480)
		* Fixed at 3M in Half-length Portrait mode. * Fixed at 2M in Stage Lighting mode. * Fixed at 5M in Digital SR mode. * Fixed at 3M in Frame Composite mode. * Fixed at 5M in Digital Wide mode, however, the first frame uses 3M. * Fixed at 2M for one frame in Digital Panorama mode. * Fixed at 5M when the sensitivity is set to 3200 or 6400. * Fixed at 5M in Burst Shooting L/M/H mode.
	Movie	1280 30 (1280×720/30 fps), 1280 15 (1280×720/15 fps) 640 30 (640×480/30 fps), 640 15 (640×480/15 fps) 320 30 (320×240/30 fps), 320 15 (320×240/15 fps)
Sensitivity (Standard Output Sensitivity)	AUTO, Manual (ISO 80-6400)	
File Format	Still	JPEG (Exif 2.2), DCF 2.0, DPOF, PRINT Image Matching III
	Movie	AVI (Motion JPEG), approx. 30 fps/15 fps, PCM system, monaural sound, Movie SR (Movie Shake Reduction)
	Sound	Voice memo: WAVE (PCM) system, monaural
Storage Medium	Built-in memory (approx. 31.2 MB), SD Memory Card, SDHC Memory Card	

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Approximate Image Storage Capacity and Recording Time

Still Pictures

		Built-in Memory			512MB SD Memory Card		
		★★★	★★	★	★★★	★★	★
12M	4000×3000	7	14	22	107	209	321
10.7M 3:2	4000×2672	7	15	23	114	228	343
9M 16:9	4000×2256	8	17	25	126	253	368
9M 1:1	2992×2992	8	17	25	126	253	368
7M	3072×2304	11	20	27	160	299	397
5M	2592×1944	13	25	36	192	368	530
3M	2048×1536	20	41	59	299	592	863
1024	1024× 768	72	123	160	1042	1777	2324
640	640× 480	149	232	261	2158	3358	3777

- The image storage capacity is for reference only. The actual image storage capacity may vary depending on the SD Memory Card and the subject.

Movies

	Built-in Memory	512MB SD Memory Card
1280 30 (1280×720/30 fps)	10 sec.	2 min. 30 sec.
1280 15 (1280×720/15 fps)	20 sec.	4 min. 59 sec.
640 30 (640×480/30 fps)	29 sec.	7 min. 11 sec.
640 15 (640×480/15 fps)	56 sec.	13 min. 36 sec.
320 30 (320×240/30 fps)	45 sec.	10 min. 56 sec.
320 15 (320×240/15 fps)	1 min. 23 sec.	20 min. 8 sec.

- The above figures are based on our standard shooting conditions and may vary depending on the subject, shooting conditions and type of the SD Memory Card used.
- Recording can continue until the built-in memory or the SD Memory Card is full, or the size of the recorded movie reaches 2 GB (when using an SDHC card). If recording stops at 2 GB, start recording again to continue to record the rest of the movie in blocks of 2 GB.

White Balance	Auto, Daylight, Shade, Tungsten Light, Fluorescent Light (Daylight Colors/ Daylight White/White Light), Manual	
Lens	Focal Length	4.6 mm -119.6 mm (approx. 26 mm - 676 mm in 35 mm equivalent focal length)
	Aperture	F2.8 (W) - F5.0 (T)
	Lens Composition	14 elements in 11 groups (4 aspherical elements)
	Zoom Type	Electrically driven

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Optical Zoom	26×	
Intelligent Zoom	7M: approx. 33.9×, 5M: approx. 40.1×, 3M: approx. 50.8×, 1024: approx. 101.6×, 640: approx. 162.5× (when combined with optical zoom)	
Digital Zoom	Up to approx. 6.25× (when combined with 26× optical zoom to give zoom magnification equivalent to approx. 162.5×)	
Motion Blur Reduction	Still	CCD shift shake reduction (Shake Reduction), Hi-sensitivity shake reduction mode (Digital SR)
	Movie	Electronic movie shake reduction (Movie SR)
Display	2.7-inch wide viewing field LCD with approx. 230,000 dots, AR coating	
Viewfinder	Electronic viewfinder with approx. 200,000 dots and diopter adjustment function	
Playback Modes	Single-frame, 4-frame, 9-frame, Enlargement (max. 10×, scrollable), Face Close-up Playback, Folder Display, Calendar Display, Histogram Display, Deleting Selected Images, Slideshow, Image Rotation, Small Face Filter, Digital Filter, Frame Composite, Movie Playback/Edit (Save as still images, Divide a movie), Red-eye Compensation, Resize, Cropping, Image&Sound Copy, Voice Memo, Protect, DPOF, Image Recovery, Start-up Image Setting	
Focus Modes	Autofocus, Macro, 1cm Macro, Infinity, Manual Focus, AF Area Selection (Selectable from among 25 points)	
Focus	Type	TTL contrast detection system by sensor (multiple (9-point autofocus)/spot/automatic tracking AF changeable)
	Focus range (From lens surface)	Standard : 0.4 m - ∞ (Wide-angle) 1.7 m - ∞ (Telephoto) Macro : 0.1 m - 0.5 m 1cm Macro : 0.01 m - 0.3 m * It is possible to switch to Infinity, Manual Focus or AF Area Selection. * Face Detection AF is available only while the camera detects the subject's face.
	Focus Lock	By half-pressing the shutter release button
Exposure Control	Metering system	TTL image sensor metering (Multi-segment/ Center-weighted/Spot)
	EV Compensation	±2 EV (can be set in 1/3 EV steps)
Face Detection	Detection of up to 32 people's faces (up to 31 face detection frames on the display), Smile Capture, Blink Detection * Face Detection AE is available only while the camera detects the subject's face.	
Capture Modes	Auto Picture, Sport, Digital SR, Program, Shutter Priority, Aperture Priority, Manual Exposure, USER, Landscape, Flower, Portrait, Backlight, Half-length Portrait, Night Scene, Night Scene Portrait, Stage Lighting, Surf & Snow, Baby, Kids, Pet, Food, Fireworks, Frame Composite, Party, Museum, Sunset, Digital Wide, Digital Panorama, Movie, Green	

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Digital Filters	B&W, Sepia, Toy Camera, Retro (Blue, Amber), Color (Red, Pink, Purple, Blue, Green, Yellow), Extract Color (Red, Green, Blue), Color Emphasis (Sky Blue, Fresh Green, Delicate Pink, Autumn Leaves), Soft, Fish-eye, Brightness	
Movie	Continuous Recording Time	Approx. 1 second - until built-in memory or SD Memory Card is full (however, maximum size is limited to 2 GB)
Shutter Speed	1/4000 sec. - 1/4 sec., max. 4 sec. (Shutter Priority, Aperture Priority, Manual Exposure, Night Scene mode)	
Built-in Flash	Modes	Auto, Flash Off, Flash On, Auto + Red-eye, Flash On + Red-eye, Slow-speed Sync, Slow-speed Sync+Red-eye
	Flash Range	Wide-angle: approx. 0.2 m - 9.1 m (approx. 0.66 ft - 29.9 ft) (Sensitivity: in Auto condition) Telephoto: approx. 1.7 m - 5.1 m (approx. 5.6 ft - 16.7 ft) (Sensitivity: in Auto condition)
Drive Modes	Single-frame, Continuous Shooting, Burst Shooting (L/M/H), Self-timer (approx. 10 sec., approx. 2 sec.), Interval Shoot, Auto Bracket	
Self-timer	Electronic control type, control time: Approx. 10 sec., 2 sec.	
Time Function	World Time	75 cities (28 time zones)
Power Source	Rechargeable lithium-ion battery D-LI106, AC adapter kit (optional)	
Battery Life	Number of Recordable Images approx. 255 pictures	* Recording capacity shows approximate number of shots recorded during CIPA-compliant testing (with display on, flash used for 50% of the shots, and 23 degrees centigrade).
	Playback Time approx. 360 min.	* According to the result of in-house testing. Actual time may differ depending on usage conditions.
	Movie Recording Time approx. 100 min.	
Interfaces	USB 2.0 (high-speed compatible), PC/AV terminal, HDMI terminal	
Video Output	NTSC/PAL (monaural)	
Dimensions	Approx. 111.0 (W) × 84.5 (H) × 110.0 (D) mm (excluding operating or protruding parts)	
Weight	Approx. 400 g (excluding battery and SD Memory Card) Approx. 428 g (including battery and SD Memory Card)	
Accessories	Rechargeable lithium-ion battery, battery charger, AC plug cord, USB cable, AV cable, software (CD-ROM), lens cap, strap, Operating Manual, Quick Guide	

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WARRANTY POLICY

All PENTAX cameras purchased through authorized bona fide photographic distribution channels are guaranteed against defects of material or workmanship for a period of twelve months from date of purchase. Service will be rendered, and defective parts will be replaced without cost to you within that period, provided the equipment does not show evidence of impact, sand or liquid damage, mishandling, tampering, battery or chemical corrosion, operation contrary to operating instructions, or modification by an unauthorized repair shop. The manufacturer or its authorized representatives shall not be liable for any repair or alterations except those made with its written consent and shall not be liable for damages from delay or loss of use or from other indirect or consequential damages of any kind, whether caused by defective material or workmanship or otherwise; and it is expressly agreed that the liability of the manufacturer or its representatives under all guarantees or warranties, whether expressed or implied, is strictly limited to the replacement of parts as hereinbefore provided. No refunds will be made on repairs by non-authorized PENTAX service facilities.

Procedure During 12-month Warranty Period
Any PENTAX which proves defective during the 12-month warranty period should be returned to the dealer from whom you purchased the equipment or to the manufacturer. If there is no representative of the manufacturer in your country, send the equipment to the manufacturer, with postage prepaid. In this case, it will take a considerable length of time before the equipment can be returned to you owing to the complicated customs procedures required. If the equipment is covered by warranty, repairs will be made and parts replaced free of charge, and the equipment will be returned to you upon completion of servicing. If the equipment is not covered by warranty, regular charges of the manufacturer or of its representatives will apply. Shipping charges are to be borne by the owner. If your PENTAX was purchased outside of the country where you wish to have it serviced during the warranty period, regular handling and servicing fees may be charged by the manufacturer's representatives in that country. Notwithstanding this, your PENTAX returned to the manufacturer will be serviced free of charge according to this procedure and warranty policy. In any case, however, shipping charges and customs clearance fees to be borne by the sender. To prove the date of your purchase when required, please keep the receipt or bills covering the purchase of your equipment for at least a year. Before sending your equipment for servicing, please make sure that you are sending it to the manufacturer's authorized representatives or their approved repair shops, unless you are sending it directly to the manufacturer. Always obtain a quotation for the service charge, and only after you accept the quoted service charge, instruct the service station to proceed with the servicing.

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- **This warranty policy does not affect the customer's statutory rights.**
- **The local warranty policies available from PENTAX distributors in some countries can supersede this warranty policy. Therefore, we recommend that you review the warranty card supplied with your product at the time of purchase, or contact the PENTAX distributor in your country for more information and to receive a copy of the warranty policy.**

CE The CE Mark is a Directive conformity mark of the European Union.

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For customers in USA
STATEMENT OF FCC COMPLIANCE
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Changes or modifications not approved by the party responsible for compliance could void the user's authority to operate the equipment.
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
  Increase the separation between the equipment and receiver.
  Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

* Consult the dealer or an experienced radio/TV technician for help.

For customers in Canada
This Class B digital apparatus complies with Canadian ICES-003.

Pour les utilisateurs au Canada
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

FOR CALIFORNIA, U.S.A. ONLY
Perchlorate Material-special handling may apply. The lithium battery used in this camera contains perchlorate material, which may require special handling. See www.dtsc.ca.gov/hazardouswaste/perchlorate

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Declaration of Conformity

According to 47CFR, Parts 2 and 15 for

Class B Personal Computers and Peripherals

We: PENTAX Imaging Company
A Division of PENTAX of America, Inc.

Located at: 600 12th Street, Suite 300
Golden, Colorado 80401 U.S.A.
Phone: 303-799-8000 FAX: 303-790-1131

Declare under sole responsibility that the product identified herein complies with 47CFR Parts 2 and 15 of the FCC rules as a Class B digital device. Each product marketed is identical to the representative unit tested and found to be compliant with the standards. Records maintained continue to reflect the equipment being produced can be expected to be within the variation accepted, due to quantity production and testing on the statistical basis as required by 47CFR §2.909. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation. The above named party is responsible for ensuring that the equipment complies with the standards of 47CFR §15.101 to §15.109.

Product Name: PENTAX Digital Still Camera

Model Number: X90

Contact person: Customer Service Manager

Date and Place: March, 2010, Colorado

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Information for Users on Collection and Disposal of Old Equipment and Used Batteries

1. In the European Union

These symbols on the products, packaging and/or accompanying documents mean that used electrical and electronic equipments and batteries should not be mixed with general household waste.

Used electrical/electronic equipments and batteries must be treated separately and in accordance with legislation that requires proper treatment, recovery and recycling of these products.
Following the implementation by member states, private households within the EU states may return their used electrical/electronic equipments and batteries to designated collection facilities free of charge*.
In some countries your local retailer may also take back your old product free of charge if you purchase a similar new one.
*Please contact your local authority for further details.

By disposing of this product correctly you will help ensure that the waste undergoes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health which could otherwise arise due to inappropriate waste handling.

2. In other countries outside the EU

These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

For Switzerland: Used electrical/electronic equipment can be returned free of charge to the dealer, even when you don't purchase a new product. Further collection facilities are listed on the home page of www.swico.ch or www.sens.ch.

Note for the battery symbol (bottom two symbol examples): This symbol might be used in combination with a designation for the chemical element or compound in use. In this case you have to comply with the requirement set by the Directive for the chemicals involved.

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